THE JOURNAL

OF THE

OKLAHOMA STATE MEDICAL ASSOCIATION

VOLUME XXVIII McALESTER, OKLAHOMA, SEPTEMBER, 1935 NUMBER 9

Modern Trends in Surgery*

MAX THOREK, M.D., K.C. (ITALY), K.L.H. (FRANCE)

Professor Clinical Surgery, Cook County Graduate School of Medicine

Surgeon-in-Chief, The American Hospital

Attending Surgeon, Cook County Hospital

Consulting Surgeon, Municipal Tuberculosis Sanitarium, Etc.

CHICAGO

Nothing stands still in Nature. Everything is perceptibly or imperceptibly but inevitably undergoing constant change. It was said that medicine stood still for nearly 1500 years, being entirely dominated by precepts of Galen. We know that this is not really so in actual fact; but, nevertheless, the Galenic central humoral concept of disease did almost entirely dominate men's ideas concerning pathology practically up to the time of Virchow. Virchow was the father of cellular pathology and up to a few years ago anyone who seriously assailed Virchow's views would have been considered anathema as far as the nature of disease is concerned. But today we can openly say that Virchow's cellular pathology is moribund if not dead and, strange to say, we are going back to Galen.

These introductory remarks are necessary because they have to do with the subject of this paper which is intended to deal with some of the major modern trends in surgery. Like pathology, the fundamental basis of surgery is changing; the change is insidious but, nevertheless, it is an actuality. We who practice the art of surgery know it and feel it; we may regret it or rejoice at it, according to our philosophy and acumen, but we are powerless to stop or impede the trends which mark the changes. Fifty years ago surgeons thought that their art had then reached its zenith; later, with the perfection of technique and the dogmatism of Vienna and Berlin, during the decade ending with the onset of the great World War, it was believed that surgery had again reached a zenith; today we think we have arrived at a new zenith; perhaps in twenty-five or fifty years more the principles governing surgery will be as different as those of today are from those of the pre-Listerian era.

I have said that we are going back to Galen. Let me be a little more specific as to what I mean exactly by this.

The guiding principle that actuated Galenic medicine was the philosophic concept that the human body was one and indivisible; every part interacted with and was necessary to the proper functioning of every other part; physical and psychical factors were not only recognized as present but they were actually complementary to each other. For many years, in surgery at least, we have acted as if the body were made up of individual parts; that limbs and organs could be removed provided that we could preserve life; the repercussions of such operative acts were not considered, at least they were not looked upon as the surgeon's concern; but today there is a distinct trend in medical science generally to return to the Galenic percept, to reconsider in a dispassionate way the long despised humoral pathology, to get away from vici-

*Read before the General Assembly Meeting, Oklahoma State Medical Society, Oklahoma City, Oklahoma, May 15, 1935.

ous specialization and to recognize that if we are to cure patients we must, so far as possible, preserve organic functioning and the forces and phenomena within the body as a whole which are correlated with such organic forces

There were great manipulative surgeons fifty and one hundred years ago but, until the introduction of anaesthesia and Listerism, their work was to a great part nullified. Fortunately in one sense, but unfortunately in another, the introduction of the new methods enabled surgeons to remove entire organs with assurance and impunity in regard to the immediate safety of the patient. Their work as craftsmen was brilliant, sometimes very brilliant indeed; they put their patients back on their feet and preserved their lives; but the aftermath was too often, alas, a crippled organism, sometimes a miserable wreck that floated over the waters of life, unfitted for any useful purpose and a burden to himself and others. The surgeon did not then take into account the physiologic and metabolic activities of every related organ and how tissular and psychic effects could be produced by the ablation of an important organ. Today the trends of surgery are different.

The teaching of the surgeon is divided into three main parts: First, there is surgical handicraft or surgical technique which, of course, is essential. Second, there is surgical pathology, indicating those diseases and conditions which pathological anatomy and clinical experience consider to be best treated by surgical methods; third, there is surgical therapeutics which is very naturally so closely related to the second division that it might be considered as part of it.

We will consider modern surgical trends in the light of the three foregoing heads.

Regarding surgical technique, there is little to be said. Methods of anesthesia, hemostasis and protection against infection have been advanced to the point that almost absolute safety of the patient is assured.

It may not be amiss in this connection to briefly survey some modern trends in important divisions of surgical handicraft. *In anesthesia* ether is still the most widely used anesthetic agent, and in the hands of the person who administers anesthetics only occasionally, is probably the safest one. Nitrous oxide, because it will not explode, is probably still the most widely used of the gas anesthetics. Ethylene is especially useful for the added relaxation it affords in thoracic and abdominal surgery.Cyclopropane is a new anesthetic gas which is very effective, but, on account of its high cost, it is necessary to use it in a gas machine that is equipped with a carbon dioxide absorber, so that the gas may be rebreathed.

Intracranial operations involve serious risk. It is well to be prepared to carry on artificial respiration and employ intratracheal anesthesia which is also of much value in operations on the thorax and upper part of the abdomen. Commenting on spinal anesthesia, Babcock is right when he says that it "is a most valuable method, and ill effects from it represent blunders in its administration."

Neurosurgery has advanced so rapidly during the past few years that it has ceased to be a part of general surgery. It not only includes operations on the central nervous system (brain, spinal cord and peripheral nerves), but also operations on the autonomic nervous system (sympathetic ramisectomy and ganglionectomy presacral neurectomy and splanchnic resection).

Chief among the diseases that have been relieved by sympathectomy are those affecting the peripheral vessels. Such conditions as Raynaud's disease, sclerderma, thrombo-angitis obliterans, Buerger's disease, chronic arthritis, spastic paraplegia, Hirchsprung's disease, constipation, amputation neuromas, traumatic sympathalgia, atypical facial pain, epilepsy, varicose ulcers, angina pectoris and malignant hypertension, have been subjected to sympathectomy and correlated surgical procedures with complete cures in some cases, and more or less amelioration in others.

In a recent article on "Cancer of the mouth," Eggers points out that since the introduction of radium and roentgen rays in the treatment of malignant growths and recognition of the value of radium, particularly for lesions of the skin, mouth, and uterus, there has been a great change

in treatment. Many of the larger clinics that have a sufficient supply of radium have almost entirely discontinued surgery for lesions of the mouth and have substituted radium for the treatment of such lesions. Radium is applied externally or by interstitial implantation depending on the situation and size of the lesion. In some clinics routine dissection of the neck is not practised.

Electrosurgery is rapidly gaining ground in brain surgery, amputation of the breast, disease of the gall bladder, malignancies of the rectum, and in urologic surgery, transurethral resection of the prostate gland signal services are being rendered.

In a recent article, Colby pointed out the relationship between the presence of parathyroid disease and the formation of urinary calculi and advised routine estimation of the calcium content of the blood-serum in all cases of urinary calculi.

In the study of the spinal column, the intervertebral disks have become better recognized as to their importance. Stimulated by the studies of Schmorl, who, in an exhaustive study, has described the pathologic changes of the spinal column, we now know more of the development of these disks and of their function as cushions between the vertebrae, made more effective for this purpose by the nucleus pulposus, a central area containing semigelatinous material under positive pressure. Rupture of these nuclei into the vertebral body, destruction of the disks by trauma, and avulsion of the disks into the neural canal, may all lead to symptoms and be recognized. The importance of the articulations between the vertebrae and their relationship to painful conditions of the spinal column, particularly in the lower portion, associated with sciatic pain, is now recognized by many. The hyperextension treatment of fractures of vertebrae has greatly improved the results in these cases. In *thoracic surgery* the treatment of stab wounds of the heart, the relief of bronchiectasis, pneumonectomy, properly indicated thoracoplasties, and under the stimulus of Howard Lilienthal, the prompt approach for the relief of postoperative pulmonary embolism have been thoroughly studied and worthwhile progress noted.

Surgery of the ductless glands has made important strides. While the value of subtotal thyroidectomy for patients with cardiac disorders induced or aggravated by hyperthyroidism has long been generally recognized, it was not until recently that the indications for operating on the thyroid gland were extended to include diseases for whose origin this gland was not remotely responsible. In 1933, Blumgart and his associates advocated complete removal of the normal thyroid gland in selected cases of congestive heart failure and angina pectoris. Conspicuous, temporary, beneficial results of the operation have been reported by several investigators.

Handley reported seven cases of carcinoma of the pancreas in which treatment was by implantation of radium. One of these patients has now lived seven years. Another patient's life was prolonged more than two years. A third patient was well after ten months. The other four patients died, probably from asthenia, as they had been suffering for months from malnutrition, jaundice, and vomiting. The importance of enterococci and the closely related nonhemolytic strains of streptococci in acute appendicitis is stressed by many.

Gundel and Sussbrich conclude that a peritonitis serum, to be of value, must have for its object the development of antibodies against at least three organisms: colon bacilli, gas-gangrene bacilli, and enterococci. Twenty cc. of the serum may be introduced into the peritoneal cavity through the drainage tube, or twenty to forty cc. may be administered intravenously in 1000 cc. of a five per cent solution of dextrose. For prophylactic treatment, from twenty to forty cc. is given intravenously in the same manner.

Recently, Rankin has again reviewed the problem of the treatment of carcinoma of the colon. According to him, the safety factors of the methods of treatment group themselves into: (1) preoperative care, (2) technical procedures, and (3) postoperative care. The preoperative factors largely resolve themselves into adequate decompression of the colon, and secondly, rehabilitation of the individual to withstand formidable surgical pro-

cedures. To insure effective decompression of the colon, one should invariably hospitalize these patients over a short period of time, usually from three to six days. Irrigations of the colon and mild purgatives over this period will in a great majority of cases sufficiently reduce the obstruction to allow exploration. One cannot emphasize too strongly the necessity of removing the obstruction prior to resection. If medical measures fail to do this, surgical measures are then indicated. Another difficulty is in removal of a barium medium which has been given by mouth for diagnostic purposes. This usually produces some type of obstruction, which occasionally demands operative intervention. The use of barium in this way cannot be too strongly deprecated.

During hospitalization, a diet high in carbohydrates and low in residue is used. Fluids are forced as much as possible and blood transfusions are highly desirable. The use of a mixed vaccine of streptococci and colon bacilli, which is given three days preoperatively, is of greatest value. This vaccine is given intraperitoneally, and its administration permits mobilization of the peritoneal defensive forces to an optimal extent.

A graded operative procedure, no matter which half of the colon the growth occupies, would seem to be the most sensible. All right-sided carcinomas are best resected in two stages: (1) by ileocolostomy, between the terminal portion of the ileum and the transverse colon, and (2) by radial resection of the tumor. An end-to-side anastomosis between the ileum and colon is of the greatest importance, and has definite advantages over lateral anastomosis. In the left half of the colon, by which is meant the major portion of the transverse colon, the descending colon, and the sigmoid, resection for obstruction, when decompression has been adequate, is the operation of choice. At times it may be necessary to employ colostomy as a preliminary procedure. Following colostomy, the patient in great measure vaccinates himself against subsequent peritoneal contamination. The most essential principle in postoperative care is the prevention of peristaltic action as much as possible. This is done by adequate doses of morphine and the refusals of liquids by mouth for from forty-eight to sixty-two hours. It is a good rule to abstain from giving fluids until the patient begins to pass gas by bowel, fluids being kept up by the administration of normal saline solutions or five or ten per cent glucose solutions intravenously or subcutaneously.

The subject of postoperative disruption of abdominal wounds has recently been reviewed by Meleney and Howes. Preventive measures should be used and such efforts to prevent disruption as the greater use of fine silk when there is no infection, and the use of catgut of assured dependability when infection is present and advised. Included also are accurate approximation of the peritoneum and posterior sheath by careful closure with fine sutures, and the intelligent use of drainage and retention sutures. Baldwin admonishes to allow sutures to remain for a more extended period than is customary. He points out that in a large series of cases, extending over a number of years, he experienced no disruption since adhering to the simple rule to be in no hurry to remove the sutures. Mont Reid's use of silver wire sutures in certain cases is undoubtedly of great value.

Regarding surgical pathology, there is much more to be said respecting modern trends. Casualty and reparative surgery, of course, stands in a class by itself. Action, prompt action, is the tocsin in these cases. In elective surgery, the surgery which involves especially the ablation of essential or important organs, it is another matter. The modern trend here is distinctly toward conservation whenever possible. Although we know we can remove many feet of small intestine, short-circuit the colon, remove a kidney, a gallbladder, an ovary, or even certain nerve tracts, we are pausing before doing these things and asking ourselves what will be the physiologic effect of these operations on the ultimate life of the patient. We are asking ourselves if there is any other way of considering a diseased or impaired organ or limb except removing it. In other words, many conditions which a few years back we never paused to consider as being amenable to any other handling except surgical, we are now considering might be better regarded as due to humoral, nervous or metabolic disturb-

ances and of being pathogenic from the latter rather than from the former point of view. The lesion or lesions causative of organic symptoms may be far distant from the organ; or ablation of an organ might cause a hormonal or humoral imbalance which in the future might be a serious matter for the patient. We are not quite so sure, or so confident, about surgical pathology, so-called, as we were ten or twenty years ago. We know today that pathologic anatomy does not tell us all the tale of disease and that microbes of one sort or another work their effects affectively rather than causatively in the case of certain conditions. Today there is a trend to study living metabolism and humoral disorganization rather than dissection in tracing the origin of disease. Medical, biologic and biochemical experimentation has changed the tag on many so-called surgical diseases. Formerly surgery ignored all glands of internal secretion, many of which were even unknown. We could remove a thyroid or parathyroid gland with super-excellent technic—yes; but did we stop to ask if that patient in a few years might become myxedematous or tetanic? Did we concern ourselves much as regards the future life of the young woman whose ovaries and tubes could be so easily removed, or that the castrated man might become feminized? How much did we ask ourselves in regard to the exact role of the jejunal mucosa in contact with a very acid gastric juice? Surgeons are asking themselves these questions today and, as a consequence, there is a trend to avoid ablative surgery unless absolutely necessary.

Again, some years ago, experimental endocardial surgery seemed to point to success, but the disconcerting discovery followed that the mitral stenosis, which division of sclerosed valves was designed to relive, was responsible only in a minor degree for the patient's disabilities. Usually the heart muscle was irretrievably damaged by toxic poisoning so that the successful performance of an ingenious and dangerous operation produced little or no actual improvement in patients who survived it.

I might refer to other surgical procedures, such as removal of the gasserian ganglion, operations for undescended testicles and so forth, but I will confine myself to saying that surgical pathology and all that it implies cannot ignore physiology nor can it afford by ablation of organs, no matter how brilliantly done, to disturb the humoral balance of the body. The trend of surgery is to consider metabolic, endocrine and other physiologic and psychical consequences, and, hence, the field of surgical pathology has become more restricted.

The orthopedic clinics of today are far less hampered than formerly owing to the fact that the origin of many diseases is recognized as due to faulty nutrition and hygiene. Furthermore, who of us a few years ago would have thought that estrin, a crystalline hormone extracted from the urine of pregnant mares, would, when painted on the skin of a male mouse, produce enlargement of the prostate and the development of large inguinal hernias? Surely the reflection of medical, physiologic and biochemical experimentation on surgery is far reaching.

Coming to surgical therapeutics, I think the modern tendency is to regard the surgical operation as not strictly therapeutic in itself but as an incident in the treatment of many diseases. The surgeon must consider himself first and foremost a physician and secondly as a surgeon. As I have already said, few diseases, traumatisms excepted, start in an organ and the whole patient must be treated. There is need for closer co-operation between the physician, the surgeon, and the biochemist, and the present day trend is certainly towards this in surgical clinics. Furthermore, there is need for constant surgical experimentation. By this I do not necessarily mean animal experimentation, but the study and research of every surgical case for the repercussions of the surgical act. Every surgeon's operating room should be a center of research. Abernethy said, "The hospital is the only proper college in which to rear a true disciple of Aesculapius." It is in this connection that standardization of hospital activities under the able leadership of Malcom T. MacEachern has done much for worthwhile trends in surgical endeavor. Especially should every surgeon be a general physician studying the blood and other body fluids so as to get at the root and

effects of disease and in the case of a surgical operation to endeavor to discover the cause of and forestall postoperative complications. There are biological reasons for these; let us try and discover them as well as the humoral, when they are humoral causes of other disturbances. We should, as therapeutists, be more than mere craftsmen; we should approach the surgical act with the physician's spirit, with the experimental mind.

It may seem strange that I as a surgeon should apparently disparage surgery; I am not disparaging it, but only pointing to new trends which are getting us away from wrong conceptions in regard to the field of surgery. I feel I am fairly conversant with the wonderful advances which surgical technic has made in the last few decades; that I fully appreciate what it has done for certain diseases in which there was no other outlook but death without it; that I fully recognize the genius and skill of the men who have with untiring zeal planned and brought to perfection certain surgical procedures; that I am not unmindful of the pioneer work of surgeons like Harvey Cushing in penetrating the uncharted surgical field of the brain, or of the many others with whose names and works you are familiar; nevertheless, none of this is inconsistent with recognition of the fact that the basis on which many of our common surgical procedures rested were not logically founded, so far as pathology and therapeutics are concerned, on the biologic and humoral origins of many organic disturbances. We are having a *New Deal* in surgery on these aspects. Instead of the field for surgery being extended, I venture to predict that it will become more and more limited according as our knowledge of the real nature of disease gained by research increases. Discovery of the real pathology of simple and toxic goiters may eliminate thyroid operations. There will always be need for surgery even ablative surgery; but when we amputate a limb we will recognize that the severing of important vessels and nerves may have serious reprecussions in distant regions. The trend of surgery in the future, as it is today, will be more and more toward humorism either by directly modifying the secretory organs or by addressing itself to nervous tracts to act on local nutritions. Serious-minded men no longer scoff at Brown-Sequard's concept of incretions and the medical world stands astounded at the revelations of endocrine research.

Opposition to newer trends must of course be expected from those brought up in the old schools of thought, the die-hards who know their old tools and their old ways and will not discard them for the new. Medicine and surgery have had to face such before; there is nothing new in it. But the younger generation and broad-minded older colleagues will seek the new light and follow the new trends. They will seek a physiologic, biologic or humoral basis for their surgical acts and by experimental clinical surgery, rather than by stereotyped dogmatic teaching, they will find it. The biologic laws which govern pathology must be discovered; we must find what regulates the life of the connective tissues, what causes its undue augmentation under certain conditions, why adhesions form, why spontaneous thrombosis and coagulation of the circulating blood occurs.

Outside microbian diseases of certain kinds, tumors and traumatic lesions, there is a vast field, principally in the humoral nervous areas, in which surgery, judiciously applied and with knowledgeable intent, may be used to correct congenital or acquired faults. Such conditions as infantilism, precocious senility, some anemias and the like, may fall within such a category. This field is vast and hardly explored, although certain surgical trends are indicated that way. This is not ablative surgery but correctional surgery. On the other hand, the surgeon of the future will not be so concerned in regard to improving methods of *removing* organs as with *methods* of *preserving* them and restoring their function when diseased; or, perhaps, in the future there may be a surgery of regeneration, if we can master the mysteries of metabolism and of tissular growth.

I recognize that my address has been sketchy rather than definite. I have merely wished to set you thinking of some actual and certain possible trends in surgery which will materially alter its complexion as known to many of us today. If

I have succeeded in getting you to think of these new aspects, I shall have accomplished my aim.

In closing, may I say that despite the outstanding advances made in modern surgical practice and thought, it is well to recall the words of Rokitansky: "Those about to study medicine and the younger physicians should not forget to light their torches at the fires of the ancients."

Cranial Nerve Signs of Intra-Cranial Pathology*

HARRY WILKINS, M.D., F.A.C.S.
OKLAHOMA CITY, OKLAHOMA

The diagnosis of intra-cranial lesions has for the most part always depended on symptoms or signs of disturbed function of parts distant to the brain. New methods have not only added to the ease of diagnosis but, in supplementing symptoms and signs, proven a boon to the neuro-surgeon in establishing a positive diagnosis and an accurate localization of lesions within the cranium. However such aids to neurological study will never supplant proper analysis of neurological symptoms and signs. It therefore behooves us as medical men to "keep step" in the field of neurology and be mindful of changes that the afflicted individual presents, and understand the significance of such signs. Practitioners in your special field have the opportunity of seeing early signs of organic intra-cranial disease more often than those of other fields of medicine and surgery. Only with the foregoing thoughts in mind did I venture to accept the invitation to appear before your section and present a paper of this nature. If the following remarks do nothing more than stimulate us to greater regard for complaints referrable to cranial nerves, my efforts will have been fully compensated.

In a study of cranial nerve symptoms and signs one must keep a few points fixed in mind. First, the anatomical origin, distribution and relationship of the nerves to surrounding structures; secondly, the physiological functions of each individual nerve; and lastly, the manifestations of various pathological processes. This is not as difficult as it might seem since these three basic principles are easily correlated. I will endeavor to present some of these basic principles to you in a brief manner.

The first or olfactory nerve, a purely sensory nerve, passes forward from a point anterior to the chiasm along the base of the frontal lobe to a point superior to the anterior nasal passage. The physiological function is that of the sense of smell. Destruction as from direct pressure by a tumor therefore causes a loss of smell. A tumor arising from the mid-line frontal region may for a long period present only this one symptom. As a rule the loss is unilateral but with a large meningeal tumor it may be lost eventually on both sides. Invariably hallucinations of the sense of smell point to a lesion more centrally located. One must be alert in watching for associated optic nerve involvement and symptoms or signs from the frontal lobes as these are the proximate structures of importance.

Of all the cranial nerves, the optic nerve and its tracts within the brain offer the greatest possible array of localizing signs of intra-cranial lesions. A study of its preserved functions and determination of lost functions is most helpful in establishing the diagnosis. The loss of vision associated with intra-cranial pressure often brings the patient to consult a physician. The use of the ophthalmoscope is in this instance imperative. Glasses should never be fitted without first having given the patient the benefits of an ophthalmoscopic examination. The ophthalmologist should use the ophthalmoscope in every case for examination, and it is my belief that the

*Read before Eye, Ear, Nose and Throat Section, Annual Meeting Oklahoma State Medical Association, Oklahoma City, May, 1935.

general practitioner will find it as useful, if not more so, than the sphygmomanometer. A choked disc, an optic atrophy, an intra-occular hemorrhage or a retinal angioma can only be detected by the use of this instrument. Numerous other diseases give occular manifestations that make its use by the general practitioner worth while.

In conjunction with this, the use of some means to determine the size and contour of the visual fields may give valuable information. The tangent screen and perimeter give a more refined result but when these are not available, test by confrontation should be employed. A total loss of sight in one eye with optic atrophy indicates a lesion anterior to the chiasm; for example, an orbital tumor or tumor in the floor of the anterior fossa. Likewise a bitemporal field defect indicates a lesion at the optic chiasm. An enlarging neoplasm of the pituitary body of course most often gives rise to this classical sign. Other tumors, namely the congenital tumors arising from Rathke's pouch, the meningiomas from the tuberculum sellae and gliomas of the chiasm may also give rise to this syndrome. As a result of direct pressure, optic atrophy, rather than papilledema, may develop. With enlargement of a tumor in this region, neighborhood symptoms may arise. Notably among these are diabetes insipidus, narcolepsy, and the loss of function of neighboring cranial nerves three, four, six and five. The "uncinate fits" of Hughling Jackson may occasionally occur.

Homonomous defects in the visual fields place the lesion to one side of the midline and behind the optic chiasm that is in the temporal, parietal or occipital lobes. When the lesion is destructive, the field defect will be evident but an irritative lesion of the cortex may give visual hallucinations. These are of form when the lesion is in the temporal region and of color with occipital lobe lesions.

The third, fourth and sixth nerves are purely motor nerves having to do with movement of the eye ball and adjustment of the lens and pupil. These three nerves take their origin from the pons and pass to the ventral surface of the brain stem. From that point they pass forward in close relationship to the cavernous sinus, the Gasserian ganglion and the internal carotid artery and enter the orbital cavity by passing through the orbital fissure. A disturbance in their function brings about either a diplopia or, in case of the third nerve, disturbance in control of the pupil and drooping of the upper lid. You are all familiar with the phenomena of the Argyll-Robertson pupil in central nervous system syphilis. Pontine tumors are notorious for the occular palsies they produce. Bilateral sixth nerve paralysis is almost pathognomonic of a pontine tumor. This however must not be confused with sixth nerve weakness, a frequent sign of intra-cranial pressure without significance toward localization of the lesion. The early dilitation of pupil, ptosis of the upper lid, and later fixation of the eye ball associated with pain over the forehead is fairly characteristic of a lesion well forward in the middle fossa as in cases of neoplasm or aneurysm of the internal carotic artery. Disturbances in conjugate deviation of the eyes result from lesions within the brain stem and need not be discussed at this time.

Pain about the face is very often a complaint that brings a patient to seek aid from the dentist, from the otolaryngologist and sometimes from the ophthalmologist. The fifth cranial nerve, taking origin from the side of the pons, passes to the middle cranial fossa where the Gasserian ganglion is located and from that point fibers pass outward through three separate openings to form the three divisions. Very often the nature of the pain and local changes in the tissues indicate a peripheral process producing the pain, for example purulent sinusitis, carcinoma of the tongue or an infected tooth. In the absence of signs of sinus infection, dental caries or obvious occular disease and neoplastic processes, one should attempt an analysis of the pain. A very transient lightning-like pain in one or more divisions initiated by a light touch, a breath of air, a facial movement, attempts to eat, etc., is characteristic of Trigeminal Neuralgia or Tic Douloureaux. On the contrary a neoplasm of the ganglion or a tumor arising from a nearby structure will tend to produce a more continuous pain associated with hypesthesia or anaes-

thesia. A paralysis or paresis of the muscles of mastication adds further weight to the diagnosis of a neoplasm of or near the Gasserian ganglion. Tumors arising in the so-called cerebello-pontine angle produce numbness in the fifth nerve distribution. Invading carcinoma from the pharynx may give a picture almost identical with a tumor of the Gasserian ganglion but careful inspection and possibly studies by biopsy from the naso-pharynx establishes the diagnosis.

The facial and remaining cranial nerves have a very short intra-cranial course. The facial is a purely motor nerve except for some fibers sent across to the otic ganglion that have to do with taste on the anterior two-thirds of the tongue. A most important thing to remember is that a lesion above the facial nucleus produces a lower face weakness of the side opposite; whereas, a lesion at the nucleus or below presents a complete one-sided paralysis of the same side of the face. The former accompanies lesions of the frontal lobe that tend to involve the motor cortex. The latter occur with tumors of the pons or more notabaly with cerebello-pontine angle tumors particularly the eighth nerve tumor group. In differential diagnosis disease of the middle ear and mastoid as well as peripheral lesions of the nerve must be considered. These conditions rarely present insurmountable difficulties.

The eighth nerve consists of two parts, the auditory and vestibular mechanisms. Their fibers are closely associated throughout their course. An irritative lesion of the auditory mechanism gives a subjective symptom known as tinnitus. With destruction the loss of hearing appears. Likewise an irritative lesion of the vestibular nerve produces dizziness, nystagmus, past pointing, vomiting and vasomotor instability; whereas destruction causes a loss of function that finally is compensated for by the vestibular mechanism of the opposite side. The above described changes in function of the eighth nerve is particularly valuable in tumors of the cerebello-pontine angle. The progress is as a rule very slow, beginning with irritation of one or both portions of the nerve. As ringing in the ear and vertigo increase with recurrence, the hearing is gradually lost and with the caloric test, functions of the vestibular mechanism will be decreased or lost. Signs of disturbed function of neighboring structures may develop. Hypesthesia or anaesthesia of the ipsilateral side of the face appearing first in the cornea, should be watched for. Ipsilateral facial paralysis of the nuclear or intra-nuclear type may occur. Disturbance in deglutition may be noted and finally cerebellar signs and signs of intra-cranial pressure appear. Early in the course of this syndrome, meniere's disease or labrynthitis must be considered. As a rule the latter lack the loss of function caused by the tumor, show no erosion of the petrous ridge as demonstrated by the x-ray and will not show signs of intra-cranial pressure.

The glossopharyngeal or ninth cranial nerve is a mixed nerve. It conducts the sense of taste from the posterior third of the tongue, provides pain, touch and thermic sense to the soft palate, tonsillar region and a portion of the ear as well as innervating the musculature of the pharynx and soft palate. A loss of taste in its distribution with pharyngeal muscular paralysis may occur in cases of tumor of the medulla, pons or of the eighth nerve. Although rather infrequent in occurrence, there is a neuralgia of the ninth nerve that is identical with tri-facial neuralgia or Tic Douloureaux of fifth nerve origin. It has been confused with tri-facial neuralgia, with vague throat disorders and in one instance with pain in the ear supposedly conveyed by fibers of the seventh nerve. Frequently in these cases tonsils have been removed without relief from throat pain. This pain may be precipitated by a tug on the tongue, by pressure in the region of the tonsillar fossa, by swallowing and other maneuvers that cause motion of the pharyngeal wall. The cause of the disease is unknown but its cure is readily effected by section of the ninth nerve intra-cranially.

The remaining cranial nerves are less often an aid in diagnosis. Of course alterations in the quality of the speech, alterations in the pulse or respiratory rate may accompany intra-cranial lesions but the findings are as a rule not decisive. Paresis or paralysis of the eleventh or spinal ac-

cessory and twelfth or hypoglossal nerves may occur with lesions of the medulla but are of greatest value when accompanied by muscular atrophy and associated neurological signs of either neuromata, of Von Recklinghausen's disease or in posterior fossa meningiomata. They rarely give help in the diagnosis of tumors or lesions of the cerebrum.

In closing may I stress the importance of analysis of cranial nerve functions when dealing with symptoms about the head or neck. Let's not forget that general systemic symptoms are to be correlated with signs of disease of the head because after all we must consider the individual as a unit and not as a group of unrelated structures.

Oral Administration of Typhoid Vaccine

H. D. Moor, M.D., and Ida Lucille Brown, M.S.
Department of Bacteriology
University of Oklahoma Medical School

PRELIMINARY REPORT

Since the establishment of the fundamental principles underlying the production of active acquired immunity by Pasteur in 1877, a variety of methods have been used such as intradermal, subcutaneous, intramuscular, intravenous and oral administration. Pasteur first used the oral method in immunizing fowls against chicken cholera. He fed them the attenuated organisms in their food and succeeded in immunizing them against this disease. We are all familiar with Calmette's B. C. G. vaccine. This vaccine, however, is far from being established as a safe method.

Drs. I. G. Fender[1] and J. Simmons, of Chicago, review the history of attempts to produce active acquired immunity by the oral administration of vaccines, especially against Typhoid, Paratyphoid and Dysentery infections. These authors report their own personal, experimental and clinical investigations:

The general underlying conception in this work is that the contents of the lumen of the gastro-intestinal tract have a definite acid-base balance and a relatively constant bacterial flora for the various levels in normal man and animals. The digestive ferments are secreted into the lumen of the alimentary tract at different levels, and hydrolysis of sugars, fats, and proteins take place in this hollow tube. Substances ingested by mouth are broken up by ferment action into smaller molecules before absorption takes place. The whole problem of oral vaccination resolves itself into a method of preventing hydrolysis of the antigen within the lumen of the gastro-intestinal tract and insuring absorption of the unchanged bacterial proteins.

The authors think that this can be done by using bile as a vehicle. Besredka considers the action of bile as a local solvent of mucus and a desquamating agent. This introduces a mechanical factor. The antigen administered after bile would then get into the body through the desquamated areas in the wall of the intestinal tract. If this were true, it would be difficult to understand how one gram of dessicated ox-bile in one hundred cc. of water can produce such a change in the walls of the intestine when a higher concentration of bile is secreted into the duodenum in much larger volumes during the course of the day. The regurgitation of bile from the duodenum into the stomach seems to be a physiological process when the gastric acidity reaches a certain concentration. The presence of bile in contact with the gastric mucosa is probably a physiologic method of inhibiting further acid secretion. The duodenal contents may not only neutralize the excess acidity, but the bile can act by inhibiting acid secretion.

The authors have presented evidence tending to show that bile placed in the post-digestive stomach is not associated with a response of this organ in secreting

acid. The stimulation of the stomach by the oral ingestion of the protein can be inhibited by administering bile in certain dilutions before the protein is ingested. There is a period of approximately two hours after the ingestion of bile into a fasting stomach, when an antigenic substance can be passed through the stomach without exciting acid secretion.

The authors' conception of the mechanism of oral vaccine, by using bile, is based upon a different principle from that suggested by Besredka. They consider the mechanism, not as a mechanical desquamating agent, which thereby increases the probability of the absorption of the antigen through the injured mucosa, but as a physiologic process. The normal stomach during the post-digestive period (eight to twelve hours after a meal) does not have one hundred cc. of one per cent bile solution suddenly brought in contact with the empty resting stomach during a post-digestive period, the fasting acid secretion is inhibited and this is followed by a period of diminished secretion. During this time interval, an antigen can be passed unchanged through the gastric lumen into the duodenum. The acid base balance of the duodenum will be shifted toward the alkaline side and it has been shown that this is the best intra-intestinal reaction for the passage of bacteria and dissolved protein through the wall of the intestinal tract.

The authors' experimental and clinical observations have supported their opinions as here expressed.

Lloyd Arnold[2] discusses oral vaccine in a paper published in the Journal of Hygiene. He apparently supports the above workers and also considers that Besredka's[3] mechanical theory is in general tenable, however, he pointed out that from his experimental work he is led to believe that in Besredka's method of oral vaccination the use of bile has another explanation than the one advanced by his investigations. He says, "we are now working upon this problem; the detailed reports will be published later."

Besredka was able to feed rabbits a whole Roux flask of B. Typhosus without producing any effect except a slight loss of weight. It is a well known fact that the lower animals are not susceptible to Typhoid infection. He believed that the intact mucosa of the intestinal wall acts as a barrier against invasion by the bacteria. He found by feeding fasting rabbits ox-bile just previous to feeding living B. Typhosus micro-organisms he could produce clinical Typhoid in them. He concluded that bile increased the absorption and assimilation of material in the intestinal tract.

Sedan[4] and Herrmann showed bile played a similar role in Typhoid infections of guinea pigs as it did in rabbits.

Markaroff[5] attempted to sensitize a series of guinea pigs *per os* with milk alone; in another series he fed the pigs milk with bile and succeeded in producing anaphylactic shock in this series.

Dietrich[6] fed white mice Tetanus toxin with and without bile. The mice which received the toxin with bile developed tetanus, while those that were given the toxin without the bile, although they received four thousand M.L.D.'s in each case, did not develop tetanus. The normal portal of entrance to tetanus toxin is through a wound.

A. L. Garbat[7] of New York reports using oral typhoid vaccine on eighty-three of his private patients but gives no record of his results. However, he does review the recorded results of using oral typhoid in Starzynski Town of Lodz and Sao Paulo, Brazil. Beginning in November, 1923, and extending to January, 1926, typhoid vaccine was administered orally to 43,196 people. Exact census stopped January, 1925; to that date 28,166 received the oral vaccine. Of this last number fifty-two contracted typhoid. Record shows that of this number twenty contracted the disease within a month following vaccination. I believe we should deduct this number because it takes from four to six weeks following the course before the peak of immunity is reached, This leaves only thirty-two of the 28,166 cases that contracted typhoid who had a reasonable chance to become fully protected. This makes a morbidity of one tenth of one per cent.

Immunity is only a relative consideration regardless as to whether it is natural or acquired, active or passive, racial,

species or individual. There is no such state as one of absolute immunity.

A second group numbering 73,494 were used as controls. These were not given the vaccine. Among this group the typhoid incidence was 993. Thus the morbidity in this group was nine times as great as among those vaccinated.

In Sao Paulo, Brazil, the record shows that 28,000 people were given typhoid vaccine orally from March 1 to September 7, 1925. Thirty-five thousand doses were distributed to the people by request and they reported that they took them by themselves. This makes a grand total treated of 63,000.

No reactions were reported in either young or old cases. Among these 63,000 only eleven developed typhoid. One of these had been vaccinated by subcutaneous and oral method; of this eleven, seven of them contracted typhoid within one month and four later Disregarding the seven we have a morbidity of .01 per cent in the 28,000, or .005 per cent in the 63,000.

Garbat describes the method of administering the vaccine orally and also summarizes his conclusion as follows: The vaccine is prescribed in the form of small tabloids similar to quinine tablets. A bile pill is swallowed on an empty stomach one and one quarter hours before breakfast and one quarter hour later a vaccine tablet is swallowed. An interval of one hour must elapse before food is taken. This procedure is repeated on the two following days making a total of three days in which to complete the course. The subcutaneous method requires three weeks to complete the course. He advises three full courses of oral vaccine given one year apart in order to acquire reasonable life protection, however, in case of direct contact it is advisable to be revaccinated. He was not able to discover any contra-indications. No reaction was observed except in a very small per cent of those vaccinated and these had only slight gastro-intestinal upsets, such as slight nausea and stomach distress. He believes that the vaccine should be given to the patient during the incubation period because in most cases where so given it has modified at least the severity of the disease.

In regard to diet there are no restrictions except the vaccine must be taken on an empty stomach. The individual can eat as usual otherwise.

There is no definite experimental evidence to show just how rapid the development of immunity is following the oral vaccination. Figures are given showing that the peak of immunity is reached in two to four weeks. Using the subcutaneous method we have fairly reliable experimental evidence that there the peak of the immunity is reached in four to six weeks.

Garbat lists the advantages of the oral method as follows: (1) public will accept this method more readily; (2) takes less time to give this vaccine, only three days; (3) no severe reactions, vaccinated individuals can go about their business as usual; subcutaneous method sometimes causes such a severe reaction that it results in loss of time from business; (4) he also claims that the oral method gives just as good immunizing results as does the subcutaneous, if not better.

Gauthier[8], Surgeon General of the French Army reports his experience with refugees and others in Greece. He reports his experience with a total of four thousand that were given typhoid vaccine orally. In one town where there had been two hundred cases of typhoid in two months time only one new case developed after one thousand had received oral vaccine. Previous repugnance to taking the vaccine was overcome by the change to the oral method and the entire population in the town was protected although nothing was done to purify the water supply.

In the two large villages the entire population took the vaccine and only four new cases developed subsequently. All four of these cases developed during the negative phase of the action of the vaccine.

Cantacuzene[9] and Penactescus. These men report statistics covering 8,673 persons who were vaccinated by the subcutaneous method, 2,575 persons who were vaccinated by the oral method, 5,575 controls who received no vaccine. During six and one-half months following the giving of the vaccine, ninety-six cases of typhoid and three cases of paratyphoid had developed in all three groups. Nine of these

had been vaccinated, three by the subcutaneous method and six by the oral method. This left eighty-four cases of typhoid among the controls. The incidence, therefore, by percentage was 0.035 per cent among those vaccinated by subcutaneous method, 0.26 per cent among those vaccinated orally and 1.8 per cent among the controls.

Victor Burke[10] and LaVerne Barnes. These workers experimented with rabbits and found the subcutaneous method more effective than the oral. They concluded from the results of their experiments with rabbits that the subcutaneous method affords adequate protection against typhoid. Any superiority of the oral method from a practical standpoint is limited to its simplicity of administration and reduction of toxicity. They did not take into consideration its economic value

It is our opinion that proper evaluation of the relative merits of the two methods must be obtained by experiments carried out on human beings, not on animals.

Solovriff[11] and Gandelsman used cultures of Shiga bacilli instead of bile to sensitize the intestines. They reported no actual figures on their work but claimed generally as good results with the Shiga bacilli as with the bile.

Eustace Cluver[12] reported his experience with the oral administration of typhoid vaccine in the Union of South Africa. He states that there the incidence of typhoid is high because of unhygenic conditions and an illiterate, ignorant and superstitious population. At that time he reports an incidence of typhoid among the miners as being generally over five per thousand.

Inoculation by the subcutaneous method was impractical there because of the resistance offered by the natives to the somewhat painful process.

Triple typhoid vaccine was prepared according to the Besredka method by the South Africa Institute for Medical Research. The first large scale experiment was made in the Gernston Area Mine A.

J. H. Pirie[13] and A. D. Orenstein. Two compounds were selected, one housing 1,850 and the other 1,750 natives. Between January 4 and 12, three thousand, five hundred natives were given the oral vaccine. During this time twenty typhoid patients were admitted to the hospital. During the epidemic there was an incidence of fifty-three typhoid cases. After January 12, no further cases were admitted to the hospital for several months. Of the twenty typhoid patients admitted after the vaccination, four had not received the oral vaccine. The other sixteen were incubating the disease when vaccinated.

The oral vaccine was introduced also at the Witwatersrand Gold Mines in 1923; at that time the typhoid incidence was 23.3 per thousand. In 1924 the incidence dropped to 10.4; in 1925 to 10.1; in 1926 to 5.2; in 1927 to 4. Cluver[13].

Conclusion: The experience in the mines and in the urban areas of South Africa, although observations have not been made on strictly experimental lines (no satisfactory control experiments having been practical), would yet appear to indicate very definitely that the degree of immunity established by the oral method is at least equal to that obtained by the subcutaneous method. He states that the oral method has two very definite advantages. The subjects, especially natives, are generally much more willing to take medicine by mouth than by injection with a needle. No malaise follows the oral administration whereas unpleasant sequelae often occur with the subcutaneous method.

Rachel E. Hoffstadt[14] and Randall L. Thompson and Carl L. Martin. These workers made an exhaustive study concerning the production of agglutin preciptin and lytic antibodies in the blood of people who had had typhoid vaccine orally as compared with those who had received it subcutaneously. They found that these antibodies are found in the blood of both groups and that there is no delay in the appearance of agglutines with the oral method over that of the subcutaneous method. Bile seems to be an aid in the production of agglutinins.

Andrinus Piffer[15] and Helen Daw. These workers studied the types of agglutinins in the blood of orally vaccinated people. They confirmed other workers' results in that they found the antibodies present.

They also showed that these antibodies were present one week after the termination of the vaccination course and they reached a peak in three to four weeks which is a somewhat shorter time than is necessary for the immunity to reach its peak in the subcutaneous method.

Joseph Simmons[16] administered typhoid vaccine orally to eighty-five people and found the appearance of agglutinin antibodies in their blood three weeks after the termination of the course.

Louis Tuft,[17] Elizabeth Yagle and Stuart Rogers. These workers found the antibody response after oral administration was completely negative in spite of the use of different strains of vaccine and different groups of persons.

They found the intradermal method of administration the best. The results of these workers differ radically from those of other workers.

Results obtained with the oral method of giving typhoid vaccine in the Bacteriology Laboratory, University of Oklahoma Medical School.

The following are the results obtained from the taking of oral typhoid vaccine by ten persons, four of whom had never had typhoid vaccine, one who had had a course of subcutaneous vaccine fifteen years previously and the other five were students who had had a course of subcutaneous vaccination last year. Before administering the vaccine capsules an agglutination test from each person's blood was run. The vaccine was then given and a period of six weeks was allowed to elapse before testing the blood again for antibodies. The results of these tests are set forth in the following table:

Person tested	Agglutinin titer of blood before taking oral vaccine	Previous Vaccination	Agglutinin titer of blood after taking oral vaccine
No. 1	1-80	1934	1-640
No. 2	1-160	1934	1-1280
No. 3	0	1920	1-640
No. 4	1-80	1934	1-640
No. 5	1-100	1934	1-640
No. 6	0	None	1-320
No. 7	1-80	None	1-160
No. 8	1-80	1934	1-640
No. 9	0	None	1-320
No. 10	0	None	1-320

Agglutination tests were run using dilutions from one to forty up to and including one to 2560.

Until the present year the Bacteriology department here has given very little thought to the oral administration of vaccines of any kind. It was brought to our attention by one of our leading biological houses and we rather half-heartedly started work with it. The results of our experiments have encouraged us to further investigate this problem. They confirm generally the findings of the majority of research workers with oral administration of typhoid vaccine.

No reaction resulted in any one of the ten vaccinated. This method used was a modification of Besredka's method. Bile was given with the first dose only. We intend using the original Besredka method with our next group.

A study of the protocol showing the results of our experiments reveals that the blood of those individuals who had been previously vaccinated by the subcutaneous method showed a higher agglutinin titer six weeks after the administration of oral vaccine than did the blood of those who had had no previous vaccination.

The blood of all showed definitely the presence of agglutinins running from a titration of 1-160 to 1-1280. The agglutinating effect of an individual's blood on B. Typhosus is now generally accepted as a measure of his resistance to typhoid fever.

The oral method of giving typhoid vaccine (as far as the results of our experiments go) produces a concentration of agglutinin antibodies greater than having typhoid fever does.

We hope to test out more extensively the value of this method of administering typhoid vaccine. If it is really as effective as the subcutaneous method it will mean a great saving in time and money to the State of Oklahoma, should they adopt it in the public health work.

BIBLIOGRAPHY

1. Fender, L. G., and Simmons, J.: Illinois State Medical Journal, April, 1932.

2. Arnold, Lloyd: Journal of Hygiene, Volume 29, Page 110, 1929-1930.

3. Besredka: Immunization Locale, Presse Medicale, Volume 32, Pages 585-587.

4. Sedan and Herrmann: Typhoid Infection in Guinea Pigs, Comptes rendes des seances de la Societe de Biologie, Volume 90, Pages 567-569, March 7, 1924.

5. Makaroff: De l'anaphylaxie alimentaire, Comptes rendes des seances de la Societe de Biologie, Volume 86, Pages 286-287, 1923.

6. Dietrich: Absorption of Tetanus Toxin through the

Intestines, Klinische Wochenschrift, Volume I, Pages 1160-1161, June 3, 1923.

7. Garbat, A. L.: The Oral Method of Prophylactic Typhoid Immunization, Medical Journal and Record, Volume 126, Pages 57-60 and 112-114, July 1928.

8. Gauthier: Bulletin de l' Academie de Medecine, Volume 91, Pages 473-492, April 1924. Abstract, Journal of the American Medical Association, Volume 82, Part II, 1924.

9. Cantacuzene and Panoctescus: Comptes rendes de la Societe de Biologie, Volume 92, Pages 1089-1172, May, 1925. Abstract, Journal of the American Medical Association, Volume 85, Part I, 1925.

10. Burke, Victor, and Barnes, LaVerne: Typhoid Vaccination by Mouth, Journal of Infectious Diseases, Volume 39, Pages 67-72, 1925.

11. Solovriff and Gandelsman: Prophylaktitcheskaia Medizyna, Karkoff, Volume 5, Pages 1-170, February, 1926. Abstract, Journal of the American Medical Association, Volume 28, Page 1408, 1926.

12. Cluver, Eustace: Oral Immunization Against Typhoid in South Africa, Lancet, Volume 216, Pages 1302-1304, 1929.

13. Pirie, J. H., and Orenstein, A. D.: Medical Journal of South Africa, 1923. Abstract by Cluver in Lancet, Volume 216, Page 1303

14. Hoffstadt, Rachel E., Thompson, Randall L., and Martin, Carl L.: Immunological Studies of Typhoid Vaccine by Mouth. American Journal of Hygiene, January, 1929.

15. Piffer, Andrimus, and Daw, Helen: British Journal of Experimental Pathology, Volume II, Pages 112-117, February, 12, 1930.

16. Simmons, Joseph: Proceedings of the Society for Experimental Biology and Medicine, Volume 29, Page 20, 1931-32.

17. Tuft, Louis; Yagle, Elizabeth; and Roger, Stuart: Journal of Infectious Diseases, Volume 50, 1932.

* * *

Dr. E. Goldfain, Oklahoma City: I have been reading the book "Local Immunization." If you want to read something interesting then read of the work of extract therapy, staphlococcic and streptococcic development in therapy of local immunization. It certainly reads nicely. I am certainly glad Dr. Moor presented this picture of the work and I would like to hear what the percentages were.

Colles' Fractures*

A. Ray Wiley, M.D., F.A.C.S.
TULSA, OKLAHOMA

Your Committee asked me to discuss some phases in the diagnosis and treatment of Colles' fractures.

The particular fracture under discussion is the one described by Colles[1] in 1814. It is caused by an indirect force to the wrist, fracturing the lower end of the radius bone transversely and usually the styloid tip of the ulna bone. It is usually caused by a fall on the out-stretched hand or some powerful force exerted on the heel of the hand and directed toward the wrist. There is a backward displacement of the lower fragment of the radius so that the lower articulating surface faces upward towards the dorsum of the hand. Normally it faces towards the palm of the hand. The fragments may be free of each other or they may be tightly impacted.

Colles' fracture, according to Bardenhauer,[2] is first in frequency of all fractures. Dupuytrens, Hoffa and Strop[2] report that it constitutes ten per cent of all fractures.

It would be hard to find a physician who has practiced long who has not come in contact or treated a Colles fracture. It would seem that the treatment of such a common fracture would be more standardized and results of treatment more uniform.

I am certain that everyone of my listeners is acquainted with the classical steps in reduction of a Colles' fracture, so that it is not necessary to go into details at this time.

It has been my duty to attend a fair number of these fractures and I must admit my results have not always been satisfactory. In connection with industrial work it is also my duty to examine many patients from various parts of Oklahoma who have suffered from Colles' fracture and who have been treated by their local physicians. Many of these cases show perfect results from treatment. There are many, however, that do not show as good results as might be obtained.

It is my opinion, after reviewing these cases, that reduction is made in the usual manner, but that the reduction is not sufficient. As you know the reduction is usually made by first increasing the deformity and then rotating or forcing the distal fragment so that the articulating surface faces toward the palm. In the impacted

*Read before the Oklahoma State Medical Association meeting at Oklahoma City, Oklahoma, on May 14, 1935.

case it is very essential that the impaction be broken up and proper alignment made. I have yet to see one that has been over-corrected.

There may be circumstances where reduction must be made before x-rays are taken, but ordinarily such procedure is inexcusable. The sooner the reduction is made, better are the chances of obtaining good results. An x-ray should always be made immediately following manipulation. With this x-ray we can tell if reduction is correct. At this point I want to discuss how to properly interpret the x-ray film. What may seem like a good reduction at a casual examination of the x-ray film may prove later to be a poor reduction and a crippled patient. By the use of a small instrument known as a "projector" (*Fig. 1*) certain angles can be

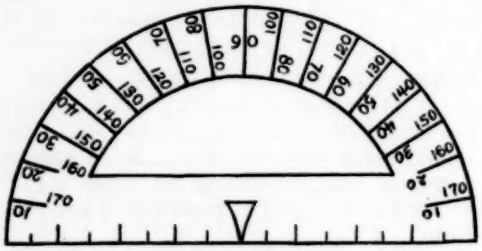

FIGURE 1
Diagram of projector with degrees of angulation.

measured on the x-ray film that will tell you definitely whether the reduction is correct or not.

About fifteen or twenty years ago some of the roentgenologists began using a system of lines and angles to determine the amount of displacement in Colles' fractures and also to determine the degree of reduction. One of the earliest midwest writers was Skinner[3] of Kansas City. A few articles on the subject appeared sporadically at long intervals.

Ten years ago McBride[4] of Oklahoma City read a paper before this Society in which he mentioned the importance of charting the x-ray films.

The use of any standard system has been, in my opinion, considerably neglected. If it had been generally used, it is quite likely that the disabilities would have been reduced and many a patient, who is now suffering from pain, loss of earning power, and a less comfortable existence, would have been cured. In these times the struggle for existence is difficult enough, at best.

In my office we use a system of lines and angles to determine the degree of reduction, and also use this to determine the amount of permanent disability in healed fractures.

As previously stated, in a Colles' fracture the distal fragment, at the lower end of the radius, is displaced or rotated backward, so that the articulating facet usually faces dorsal-ward instead of towards the palm as in a normal wrist. The x-ray in the lateral position is first studied. We draw a line through the long axis of the shaft of the radius. This is our foundation. Another line is drawn on the film touching the dorsal and palmer tips of the articulating surface of the lower end of the radius. This line, of course, will cross the foundation line. Any one of the angles formed may be used, but we, from practice, use the angle on the palmer proximal side. (*Fig. 2*). We checked many normals

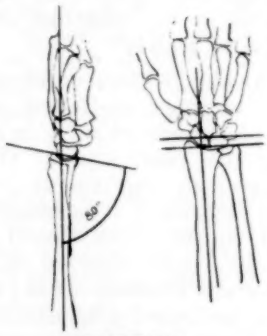

FIGURE 2
Diagramatic outline of bones of the wrist, showing lines and angles in the normal.

of our own to determine what we considered a normal angle and we found it to be eighty degrees. Stevens[5] estimated this to be from seventy degrees to eighty degrees with an average of seventy-two degrees. If you measure the angle in a Colles' fracture before reduction is made you will find the angle to be one hundred and five degrees to one hundred and fifteen degrees. A reduction is then made and the angulation determined on the new film. If the angle is more than ninety degrees, further reduction is necessary. If it is under seventy degrees, over-correction has

been made. On the wet film the projector can he held close to the film and the degree of angle estimated very closely.

We also check the amount of impaction, according to a plotting of lines, which I believe was first used by Sante.[6] The anterior posterior view is now studied. Again a line through the long axis of the radius is the primary line. Another line is drawn at right angle to this first line and is made to touch the tip of the ulnar styloid. A line parallel to this second line is then drawn, touching the tip of the radial styloid. Normally this last line should be three-eighths to five-eighths inch distal to the one touching the ulnar styloid. The variation is due to age and size of various individuals. If the tip of the radius is proximal to the ulnar line a severe impaction is present and a bad deformity will result unless corrected. A moderate impaction will show a narrowing of the space between these lines. (*Fig. 3*).

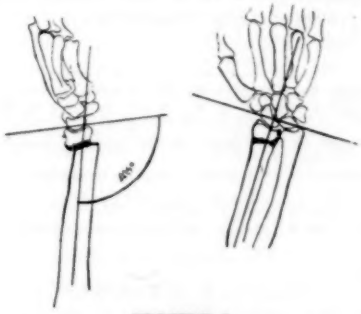

FIGURE 3

Lateral view (a) shows diagramatic line of fracture and displacement of Colles' fracture. Anterior posterior view (b) shows marked impaction of the lower end of the radius.

The whole crux of this matter, in my opinion, lies in the fact that when the reduction is made and an x-ray taken we are too prone to be satisfied with the reduction without actually determining that a full and complete reduction has been made. I am making a plea for a more careful examination of the film and a greater precision in the reduction.

We have also attempted to evaluate the amount of permanent disability in terms of uncorrected angulation of the fragments. We also recognize that impaction with radial shortening, soft tissue damage, and post-traumatic arthritic changes must be taken into account in arriving at the amount of disability. However, I feel that a greater portion of the disability is due to failure to correct the angulation. For a working basis, to determine the disability in terms of degrees of angulation, we feel that an angle of eighty-five degrees, which is five degrees above normal, will give no disability. But if the patient has a ninety degree angle he will have from ten per cent to fifteen percent disability. Patients with more than ninety-degree angle will show an increasing amount of disability, which we estimate to be approximately five per cent for every degree over ninety degrees. This is given as a working basis, which from time to time may need some amendments, but has been of practical benefit to me.

After the reduction is made there is, as a rule, very seldom any trouble of maintaining this reduction. A well padded and not too tight, anterior and posterior splint should be used. I prefer to use felt pads, or sheet wadding anterior and posterior and then apply a circular plaster bandage, but always immediately split this bandage on two sides so that I have a posterior and anterior plaster Paris splint. An unsplit plaster bandage will invite catastrophe. The hand and dressing should be inspected daily, if at all possible. If progress is satisfactory the splints are removed the fourth day and gentle massage given with passive and active manipulation of the fingers. On the eighth day the arm is again re-x-rayed. By this time the patient is made to flex the hand as much as possible without undue pain and he may also begin extension at that time. This should be done gently, of course, as any undue strain or forced manipulation can displace some of the fragments this early. However, there is little danger of displacement of the fragments by flexing the hand. In the average case all heavy splints are discontinued at the end of two weeks. A light dressing, re-enforced by wood tongue blades is sufficient for another week or ten days. After the second week massage and manipulation are somewhat increased in vigor and more active motion is prescribed. A final x-ray is made at time of dismissal.

Summary:

1. A description of Colles' fracture is

given and frequency of this fracture noted.

2. A plea is made for:
   (a) An early reduction.
   (b) A complete and correct deduction by breaking up of compression and correction of angulation.
   (c) X-ray examination before and after manipulation and follow-up x-rays.
3. A system of lines and angles to be used on x-ray film in Colles' fracture is reviewed. These are given to aid in determining precision in reduction and as an aid in determining permanent disability in old healed cases.
4. Method of immobilization and after-treatment used by author is given.

* * *

DISCUSSION

Dr. Earl McBride: This is a very timely paper. It seems that no matter how many times we talk about the thorough reduction of Colles' fracture, we continue to see Colles' fractures that are only partially reduced. There is not so much trouble with fractures that are actually obviously displaced. It seems that the fractures that are more often neglected are those which, when the patient comes in, do not look as if there is much displacement, and in examining the x-ray we are often times satisfied with the alignment of the shaft. Now, I believe these lines Dr. Wiley has called attention to are important, and I believe they should be used. If you are used to them in your mind you don't have to actually draw them on the x-ray film, but if there is any question in your mind at all about the fracture, a simple line drawn on the x-ray may save you a lot of disability and impairment. This fracture is so easy to reduce, and it is probably more overlooked than any other fracture and is less thought of by the patient until they have their deformity. Another error is the failure to give an anesthetic and see that you have complete relaxation. Most patients with Colles' fracture tempt you to go ahead and reduce that fracture without an anesthetic. They say, "I can stand it. Go ahead and fix it." If we are not on our guard, we may attempt to reduce it without an anesthetic. A high percentage will not be reduced according to the angles Dr. Wiley has spoken of, and if they are not reduced according to these angles, you will have deformity in spite of everything, and of course you know the seriousness of deformity. I believe I want to emphasize again the simple use of these lines. Sometimes we forget about impactions. An impacted fracture is just as important to be reduced as the ordinary type that shows on the face that it is not impacted. Sometimes we feel that we can go ahead and set the fracture without an anesthetic, but to get that fragment down and keep it in place, you simply have to give the patient an anesthetic and have the muscles relaxed, or you will not have a good reduction.

Dr. Wiley: I have nothing more to say except to thank Dr. McBride for his discussion and for his emphasis on breaking up impactions. This is extremely important in overcoming disabilities.

BIBLIOGRAPHY

1. Gibson, A.: Canadian Medical Association Journal.
2. Quoted by Carter, R. M.: S.G.O., Volume XLI, No. 3, 1925.
3. Skinner, E. H.: Journal of the American Medical Association, Volume 92, No. 9.
4. McBride, Earl: Journal Oklahoma State Medical Association, 1925.
5. U. S. Naval Bulletin, August, 1922.
6. Sante, L. R: Manual of Radiological Technique, 1934.

RELIABLE APPARATUS

The Oklahoma State Medical Journal has received from the American Medical Association a small pamphlet containing a list of the apparatus accepted by the Council on Physical Therapy, the first one published under the direction and supervision of the Council. In addition to the list and description of accepted apparatus, the pamphlet contains indications for the use of each type and a statement relative to efficacies and dangers.

This pamphlet is a real contribution on the part of the American Medical Association in behalf of rational therapeutics—an effort to help place physical therapy on a sound, scientific basis for the benefit of the medical profession.

One of the purposes of the Council on Physical Therapy is to protect the medical profession, and thereby the public, against inefficient and possibly dangerous apparatus and against misleading and deceptive advertising in connection with the manufacture and sale of devices for physical therapy.

"Apparatus Accepted" includes all the devices accepted by the Council prior to May, 1935. Any physician can obtain this pamphlet free by writing to the Secretary, Council on Physical Therapy, A. M. A., 535 North Dearborn Street, Chicago, Illinois.

Tuberculosis Complicated by Pregnancy*

J. T. WOODBURN, M.D.
MUSKOGEE, OKLAHOMA

In attempting to prepare a paper on the relationship between pregnancy and tuberculosis one soon confronts difficulties and finds it almost impossible to present many accurate facts or true deductions agreed upon by all authorities. As the literature is reviewed a great divergence of opinion is found and comparison of the various studies is difficult because the various authors do not agree on a uniform set of definitions and terms. Dr. Allen K. Krause,[1] the editor of The American Review of Tuberculosis, in the February, 1935, issue denounces almost all previous studies for a number of reasons, principally the assumption that pregnancy acts as a constant factor in its influence on tuberculosis and the general term "pregnancy" has nearly always included three phases: pregnancy, parturition, and puerparium. For a perfectly normal pregnancy, labor and puerparium this combination of terms may be all right, but when we encounter the intoxications of pregnancy, long difficult labors or puerperal infections we see that each condition has its individual effect and may change the course of tuberculosis to a marked degree.

If we do accept the usual use of the term "pregnancy" as stated above we will still recognize the fact that it acts in widely different ways with different patients. Although we all believe that pregnancy is a normal function for the female, some authors give the impression that it is an evil experience. Every obstetrician has patients whose health is undoubtedly improved with each pregnancy and other patients in whom pregnancy impairs their general well-being and a gradual failure of health results. Likewise in tuberculous patients, we see some whose tuberculosis improves and sometimes actually becomes arrested during the course of pregnancy, while in others the tuberculosis is made worse and a progression of the disease follows. Thus we see one of the most important problems retarding our efforts to gain an accurate knowledge of the relationship between pregnancy and tuberculosis. In view of this problem Dr. Krause believes that our opinion should be concerned with quantitative effects and he suggests as follows:

"May it not be that pregnancy exerts a harmful effect on tuberculosis in those women who without tuberculosis would naturally tolerate pregnancy poorly, and a harmless or even beneficial effect on those tuberculous women who without tuberculosis would stand pregnancy well or even have their bodily economy improved by pregnancy?"

Since as yet no definite workable plan has been devised to solve this problem we are forced to form our opinions by a review of the most recent works on the subject even if most authors do treat pregnancy as a more or less constant factor in its influence on tuberculosis and also include pregnancy, parturition and puerperium under the one term.

Now, although we do accept the above assumptions we are immediately confronted with another situation having a marked effect on our study. It is the kind of provisions we have for the care of the pregnant tuberculous woman in the United States. A survey of our sanatoria reveals that the pregnant tuberculous woman receives only a fraction as much sanatorium care as her non-pregnant sister. A large percentage of our sanatoria will not accept pregnant women and of those who do many do not keep her during labor and the puerparium. Is it any wonder that most of the literature of the past has presented such pessimistic reports? An extensive survey of these sanatorium provisions was made by Alice M. Hill[2] and presented in the August, 1927, issue of The American Review of Tuberculosis. She found that much of the previous data on the effect of pregnancy on tuberculosis must necessarily be discounted because in

*Read before the Oklahoma Medical Association meeting at Oklahoma City, Oklahoma, May 14, 1935.

a great number of cases the care given a pregnant tuberculous woman is not comparable with that given the non-pregnant. A questionnaire sent to the 463 sanatoria in the United States admitting tuberculous women brought replies from 413. Of these seventy-three had no provisions whatever for pregnant women; eighty-seven accepted them and kept them through delivery and 247 accepted cases but did not keep them through delivery—the time when they need sanatorium care most. Six sanatoria reported that no cases had been admitted. It was found that in only twenty-eight states were there institutions which accept tuberculous women and care for them during delivery. Among the 247 who do not accept such cases but transfer them for delivery some were found which discharge the patient during the sixth month, some during the seventh, some during the eighth and some just before delivery. These women are then cared for in a variety of ways and are usually delivered in a general hospital or in the home. And many are not in contact with a tuberculosis specialist during these trying months—the months most fraught with danger. We will all admit that these women who are turned out of the sanatoria are not receiving adequate treatment and it is unfair to compare their subsequent course with that of similar tuberculous patients whose treatment in the sanatoria is not interrupted.

In 1928 Alice M. Hill[3] presented a rather extensive statistical study of the relationship between pregnancy and tuberculosis as found in 349 mothers known to the tuberculosis clinics and sanatoria of Detroit, Michigan. It was found that only about one-third of this group were known to have had as much as six weeks sanatorium care. The ages and the order of pregnancies of the entire group corresponded closely with the ages and order of pregnancies of all white mothers in Michigan, but the maternal mortality rates varied from that of the general population. However, the maternal mortality rates did correspond rather closely with the death rates of all tuberculous women. The general conclusion was "that pregnancy had no appreciable bearing upon the progress of the tuberculous disease."

Another author, Von H. Braeuning,[4] in a recent publication on pulmonary tuberculosis and pregnancy presents some interesting conclusions after a study of the histories of 215 tuberculous women in whom there was a total of 360 pregnancies. He agrees with Dr. Krause that it is difficult to collect and evaluate the mass of data presented by numerous authorities on both sides of the problem but he does believe that pregnancy has a detrimental effect in general but not nearly so frequently as has been believed.

Another paper on "The Influence of Pregnancy on Pulmonary Tuberculosis" by George G. Ornstein and Maurice Kovnat[5] was published in the February, 1935, issue of The American Review of Tuberculosis and is as clear and useful a report as has been presented to date. They base their study on the records of eighty-five tuberculous patients who were delivered at Sea View Hospital in New York City during the last ten years. They divided their cases into groups and made a classification based on the character of the pulmonary pathological processes. Their two main groups were Exudative and Productive and the Exudative was further classified into benign exudative, exudative productive and caseous-pneumonic. They classified their eighty-five cases of pregnancy in this manner and found that all thirty-one of their deaths were in the caseous-pneumonic group in which the prognosis is bad in any case of tuberculosis. A careful comparison of fifty-one pregnant women in the caseous-pneumonic group with a like number of non-pregnant tuberculous women revealed 80.37 per cent died or progressed in the pregnant group while 94.00 per cent died or progresed in the non-pregnant group. Their figures are quite convincing and they summarize as follows: "That the bad prognosis did not depend on the pregnancy but on the character of the pulmonory tuberculosis."

In the 1934 Yearbook of Obstetrics and Gynecology, DeLee and G. T. Palmer[6] express the opinion that pregnancy is to be avoided in tuberculous women until at least two years after the complete arrest of their tuberculosis.

Some men say that all tuberculous women should be aborted at about three or four months, but no one has ever presented reliable convincing proof that this

is the proper procedure, especially if the patient gives a history of improvement with previous pregnancies. Many of us also doubt if it is proper to abort far advanced cases for a large proportion of these abort spontaneously.

One point which should be mentioned is the disposition of the child. It is agreed by all that the child should be separated from the tuberculous mother immediately after birth. This, of course, is something that no mother is anxious to do and grief and worry sometimes follow, thus creating an unfavorable attitude for recovery.

To summarize:

1. The fallacies of much of the data of previous studies and the great divergence of opinion makes it difficult to draw many definite conclusions.

2. The pitiful lack of sanatorium provisions for the pregnant tuberculous woman makes it unfair to compare the course of her disease with that of patients receiving adequate sanatorium care.

3. As the tuberculosis is the prime condition the delivery should take place preferably in a sanatorium, but if it necessarily must be in a general hospital or in the home; a tuberculosis specialist should also be in attendance.

4. From recent works it appears that pregnancy in tuberculosis is not nearly so harmful or such a great evil as was formerly supposed.

5. A closer cooperation between the obstetrician and the tuberculosis specialist is very desirable.

In conclusion it may be said that the parts of this paper are rather hard to correlate but the author will feel justified in presenting it if it serves only to create an interest in the formation of a workable plan whereby the history of every case of pregnancy and tuberculosis—whether in the largest sanatorium or the smallest rural community—will be preserved in a form useful in creating accurate data on this subject a few years hence.

BIBLIOGRAPHY

1. Krause, A. K.: Editorial on Pregnancy and Tuberculosis, American Review of Tuberculosis, February, 1935.

2. Hill, Alice M.: Sanatorium Provision in the United States for the Pregnant Tuberculous Woman, American Review of Tuberculosis, August, 1927.

3. Hill, Alice M.: A Statistical Study of the Relationship between Pregnancy and Tuberculosis, American Review of Tuberculosis, February, 1928.

4. Braeuning, Von H.: Pregnancy and Pulmonary Tuberculosis, Review of Book, Journal American Medical Association, March 16, 1935.

5. Ornstein, G. G., and Kovnat, Maurice: The Influence of Pregnancy on Pulmonary Tuberculosis, American Review of Tuberculosis, February, 1935.

6. DeLee, J. B., and Palmer, G. T.: Yearbook of Obstetrics and Gynecology, 1934.

7. Fishberg, Maurice: Pulmonary Tuberculosis.

Thirteenth Annual Fall Clinical Conference of the Kansas City Southwest Clinical Society

The Thirteenth Annual Fall Clinical Conference of the Kansas City Southwest Clinical Society will be presented in the President Hotel, Kansas City, Missouri, October 7th through the 10th this year.

Guest speakers, each of whom will present two or more scientific subjects, include Dr. Fred Albee of New York City; Dr. John Alexander of Ann Arbor, Michigan; Dr. Wayne Babcock of Philadelphia; Dr. Harlow Brooks of New York City; Dr. Arthur C. Christie of Washingtn, D. C.; Dr. Alfred Folsom of Dallas, Texas; Dr. Harry S. Gradle of Chicago; Dr. Francis E. LeJeune of New Orleans; Dr. William S. Middleton of Madison, Wisconsin; Dr. M. G. Peterman of Milwaukee, Wisconsin; Dr. Edward A. Schumann of Philadelphia; Dr. Albert Soiland of Los Angeles and Dr. Cyrus C. Sturgis of Ann Arbor, Michigan.

Scientific papers will also be presented before the General Assemblies by seventeen members of the society. In addition, two hours will be devoted the mornings of October 8th, 9th and 10th to Sectional Lectures and Clinics, presented by members of the society. These sections and clinics will be presented concurrently on non-conflicting subjects each morning.

Scientific and Technical Exhibits will be housed on the convention floor of the hotel and will be open to visitors daily.

The Public Meeting will be held Monday evening in the Ararat Shrine Temple. This meeting will be open to the public, with Dr. Harlow Brooks, Dr. Arthur C. Christie and Dr. Albert Soiland each bringing a message of special interest to the laity as well as the profession.

The scientific session of Tuesday evening will be complimentary to the members of the local county medical societies as well as all registrants for the conference. Addresses will be made by Dr. Wayne Babcock, Dr. Harlow Brooks and Dr. Arthur C. Christie.

Each day Round Table Luncheon will afford an additional opportunity for the doctors to hear informal talks by guest speakers. Tuesday's luncheon will be a testimonial to John Fairbain Binnie with the address by Dr. Wayne Babcock. The luncheon on Wednesday will be a memorial to Jabez North Jackson.

Wednesday evening's entertainment will include a tour of the Wm. Rockhill Nelson Gallery of Art and will be complimentary to the doctors and their families.

The women's committee has arranged features of entertainment for the visiting women. All parties will be complimentary to the wives of the physicians who register for the Fall Conference.

The closing feature of the four days intensive program will be the Alumni Dinners. An added feature this year will be the Clinical Society Dinner for men and women

Students Throughout United States Will Debate on Medical Economics

With the selection of Medical Economics as the subject matter for debate for 1935-36 by the National University Extension Association Debate Committee, the following letter from Dr. R. G. Leland, Director of the Bureau of Medical Economics, is both timely and of unusual interest to members:

Dr. L. S. Willour, Secretary,
Oklahoma State Medical Association,
McAlester, Oklahoma.

Dear Dr. Willour:

The National University Extension Association Debate Committee has announced the subject for debate for 1935-36. The proposition is: "Resolved: That the several states should enact legislation providing for a system of complete medical service available to all citizens at public expense."

The choosing of this proposition by the National Committee means that it will be debated by more than 100,000 students in high schools, colleges and universities throughout the United States. The debates will be heard by large and small audiences, in auditoriums and over the radio. It is anticipated that a considerable amount of public interest will be stimulated.

In order to provide students with adequate material for the study of the proposition, the Committee is devoting the eighth annual Debate Handbook to the field of Medical Economics. The editor of the volume is Mr. Bower Aly, Department of English, University of Missouri, Columbia, Missouri.

The Bureau of Medical Economics has prepared an article on the negative argument of this proposition. This article will appear in the Official Debate Handbook. The American Medical Association has also made available for free distribution to debaters the following publications of the Bureau of Medical Economics: A Critical Analysis of Sickness Insurance; Sickness Insurance Not the Remedy; Sickness Insurance Catechism; Some Defects in Insurance Propaganda. Other publications of the Bureau of Medical Economics are being furnished for library loan packages as follows: An Introduction to Medical Economics; Health Insurance in England and Medical Society Plans in the United States; Sickness Insurance, State Medicine and the Costs of Medical Care (Revised Handbook); Collecting Medical Fees; Contract Practice; The Costs of Medical Education; Group Practice; Some Phases of Contract Practice; New Forms of Medical Practice; Prepayment Plans for Hospital Care; Group Hospitalization Contracts are Insurance Contracts. Distribution of Physicians in the United States and Medical Relations under Workmen's Compensation.

Mr. Bower Aly requested that the above listed material for free distribution and for library loan packages in your state be sent to Mr. T. M. Beaird, University of Oklahoma, Norman, Oklahoma.

The first printing of the Handbook on Sickness Insurance, State Medicine and the Costs of Medical Care was pubished by the American Medical Association in December 1930. Since that time more than 7500 of these Handbooks have been distributed throughout the United States. An examination of our files shows that since 1932 we have had requests for material on "state medicine" from the following places in your state: Norman, Muskogee, Sayre and Oklahoma City.

The proposition for debate by students during 1935-36 has been officially announced; unfortunate as the selection may seem, I am of the opinion that it is not only impossible but also unwise to attempt to change the National University Extension Association plans. On the contrary, I believe State Medical Societies should endeavor to assist debaters to secure the most dependable printed material on the subject and an accurate understanding of the attitude of the medical profession as represented in the Official actions of the House of Delegates.

Yours respectfully,

R. G. LELAND, M.D., Director,
Bureau of Medical Economics,
535 N. Dearborn St., Chicago, Ill.

August 20, 1935.

The School Child's Breakfast

Many a child is scolded for dullness when he should be treated for undernourishment. In hundreds of homes a "continental" breakfast of a roll and coffee is the rule. If, day after day, a child breaks the night's fast of twelve hours on this scant fare, small wonder that he is listless, nervous, or stupid at school. A happy solution to the problem is Pablum, Mead's Cereal pre-cooked and dried. Six times richer than fluid milk in calcium, ten times higher than spinach in iron, and abundant in vitamins B and G, Pablum furnishes protective factors especially needed by the school child. The ease with which Pablum can be prepared enlists the mother's cooperation in serving a nutritious breakfast. This palatable cereal requires no further cooking and can be prepared simply by adding milk or water of any desired temperature. Its nutritional value is attested in studies by Crimm et al who found that tuberculous children receiving supplements of Pablum showed greater weight-gain, greater increase in hemoglobin, and higher serum-calcium values than a control group fed farina.

Mead Johnson & Company, Evansville, Indiana, will supply reprints on request of physicians.

The Therapy of the Cook County Hospital: Psoriasis

In his discussion on the therapy of psoriasis, as outlined by Theodore Cornbleet and practiced by the attending staff of the Cook County Hospital, Bernard Fantus, Chicago, (Journal A. M. A., July 13, 1935), gives the general measures of treatment which entail diet, climate, drugs and proteotherapy. Under local therapy the removal of scales, soothing applications, irritative applications and irradiation are discussed. Prescriptions are listed for salicylate and alkali, salicylic acid ointment, compound chrysarobin and salicylic acid ointment, salicylated oil of cade pigment and ammoniated mercury and salicylic acid ointment.

THE JOURNAL
OF THE
Oklahoma State Medical Association

Issued Monthly at McAlester, Oklahoma, under direction of the Council.

VOL. XXVIII SEPTEMBER, 1935 No. 9

DR. L. S. WILLOUR.....Editor-in-Chief
McAlester, Oklahoma
DR. T. H. McCARLEY.....Associate Editor
McAlester, Oklahoma

Entered at the Post Office at McAlester, Oklahoma, as second-class matter under the act of March 3rd, 1879

This is the official Journal of the Oklahoma State Medical Association. All communications should be addressed to The Journal of the Oklahoma State Medical Association, 203 Ainsworth Building, McAlester, Oklahoma. $4.00 per year; 40c per copy.

The editorial department is not responsible for the opinions expressed in the original articles of contributors.

Reprints of original articles will be suplied at actual cost provided requests for them is attached to manuscripts or made in sufficient time before publication.

Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal the manuscript will be returned to the writer.

Failure to receive The Journal should call for immediate notification of the editor, 203 Ainsworth Building, McAlester, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes of addresses, births, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmacy of the A. M. A., will not be accepted.

Advertising rates will be supplied on application.

It is suggested that wherever possible members of the State Association should patronize our advertisers in preference to others as a matter of fair reciprocity.

Printed by News-Capital Company, McAlester

EDITORIAL

"DOCTOR"

There has been much editorial comment of late relative to the use of the word "Doctor" as a part of the trade name for so-called orthopedic shoes.

Dr. Norman D. Mattison, New York, has compiled a list of shoes as placed on the market in 1932 in which he shows that one hundred eighty-nine trade names, featuring particular lasts of shoes, used the name of "Doctor" in connection with the name of the shoe. Inasmuch as every foot deformity differs from every other one "it should be apparent that no shoe constructed according to a standardized type could be adequate for any deformed or weakened foot." (From the Journal of the A. M. A.) It is preposterous to think that a shoe salesman could reach up and take a pair of "Dr. So-and-So's" shoes from the shelf and fit the buyer who needs some special last. There is no question but what fraud is being perpetrated by a deception which is being worked by shoe dealers in advertising certain "Doctor" brands of shoes.

The term "Doctor," as applied to chiropody, can be used only when the explanation is given of the field in which the doctorate has been granted. This applies not only to chiropody but to optometry, pharmacy, chiropractics, *et cetera*. When the term "Doctor" alone is used it implies a doctorate in medicine, and therefore the person is a full-fledged physician and any careless handling of the designation constitutes, in our opinion, fraud.

The tendency of such practice is intended only to cheapen the word "Doctor" and the profession is already plagued to distraction by the platoons of charlatans and mountebanks who pose as healers and miracle workers, using this designation.

Not only is the laity being "bunkoed" by these various "Doctor" shoes but it seems probable that some of the physicians, who know little or nothing about foot weaknesses, and deformities, are sending their foot cases to those shoe men to buy a pair of "Doctor So-and-So's" shoes. The foot ailment requiring a particular shoe is worthy of the attention of a competent orthopedist and the physician will do well to advise his clientele as to the "bunk" contained in advertising of various shoes carrying the designation of "Doctor."

THE NEW DEAN

Major General Robert U. Patterson has been appointed Dean of the Medical School by the Board of Regents and will begin his duties September 1st.

General Patterson was named assistant surgeon of the United States army in 1901. He became surgeon general of the army, with the rank of major general, in June, 1931. He is a member of a national board of medical examiners and the federal board of hospitalization.

The medical profession of Oklahoma will welcome General Patterson to this State. We wish to compliment the Presi-

dent of the University and the Board of Regents on his selection and will promise to General Patterson our support in his undertaking to maintain and improve the standards of medical teaching in Oklahoma.

Editorial Notes—Personal and General

DR. and MRS. J. W. BROWNING, Geary, are vacationing in Colorado.

DR. T. F. SPURGEON, Frederick, is reported ill, having received severe burns from ignited gasoline.

DR. C. S. WALLACE, Holdenville, has been appointed county health superintendent of Hughes County.

DR. and MRS. J. F. PARK, McAlester, have returned from Baltimore. Dr. Park has spent the past two months studying in Vienna.

DR. E. ALBERT AISENSTADT, Picher, has returned from South America where he attended the Pan-American Medical Association Congress.

DR. L. C. KUYRKENDALL, McAlester, has returned from Mexico City where he attended the Rotary International.

Resolutions

R. JAMES COMER JOHNSTON

Dr. J. C. Johnston, McAlester, died July 26, 1935, at Albert Pike Hospital after an illness of several months.

Dr. Johnston was born in Reidsville, North Carolina, January 3, 1878. He received his medical degree from the Baylor University. He has practiced in Amarillo, Texas, and Waurika and Wilburton, Oklahoma. He was appointed Medical Superintendent of All Saints Hospital, McAlester. In 1919 he opened an office and practiced in McAlester until the time of his death.

He was a member of Bedouin Temple of Muskogee and played in the band there for many years. He also played in the Masonic Band and was director pro tem in McAlester. He was President of the McAlester Rotary Club for two consecutive years. He was also President of the Pittsburg County Medical Society and Southeastern State Medical Society. He was a member of the Presbyterian Church.

He is survived by his wife, a son and a daughter.

Realizing the inadequacy of language to state the feeling of loss caused by the passing of a close associate in a work entering into the most intimate relationship with those we serve, your committee suggests placing upon the records of the Pittsburg County Medical Society and sending copies to the close relatives the following simple resolutions:

FIRST, An expression of our sincere appreciation of his good fellowship, his whole-hearted cooperation, his inexhaustible zeal in all of his work and undertakings, whether remunerative or not, his loyal untiring efforts in the speedy accomplishment of any task assigned to him by the Pittsburg County Medical Society. We shall indeed miss him.

SECOND, An expression of sympathy to his wife, son and daughter and to his many friends.

J. E. DAVIS,
T. H. McCARLEY,
R. K. PEMBERTON,
Committee, Pittsburg County Medical Society,
Staff—Albert Pike Hospital.

Seventh Annual Training Course for Medical Reservists at the Mayo Clinics

The two weeks' period, October 6th to 20th, 1935 has been selected for the Seventh Annual Training Course for Medical Department Reservists of the United States Army and Navy, at the Mayo Clinic, Rochester, Minnesota.

The program will follow the plan which has been so successful in past years. The morning hours will be devoted entirely to professional work in special clinics and study groups. Officers in attendance may select the course they wish to follow from the wide variety of presentations offered. The afternoons and evening will be devoted to Medico-Military subjects.

The staff and faculty of the Mayo Clinic will present the professional training, while the Medico-Military Program will be under the direction of the Surgeon of the Seventh Corps Area (Army) and the Surgeon of the Ninth Naval District (Navy).

Enrollment is open to all Army and Navy Reservists of Medical Departments, in good standing. Applications should be submitted to the Surgeon, Seventh Corps Area, Omaha, Nebraska, or the Surgeon, Ninth Naval District, Great Lakes, Illinois—Enrollment is limited to two hundred.

The Surgeon General of the Army, the Navy and the Public Health Service, have all signified their desire and intention of being present during at least a portion of the course.

DOCTOR RAYMOND ROBINSON HUME

Dr. R. R. Hume, age 55 years, pioneer physician of Caddo County, died August 11th, at his home in Minco, following an illness that forced his retirement from practice last April.

Dr. Hume was born at Tontogany, Wood County, Ohio, July 26, 1880, the second son of Dr. Chas. R. Hume and Annette Ross Hume. In 1881 the family moved to Caldwell, Kansas, where they remained for almost ten years. In December, 1890, they moved to Anadarko where Dr. Chas. R. Hume secured a position as the Indian Agency physician.

The deceased received his preliminary education at Caldwell; attended subscription school at Anadarko and Chickasha. In February, 1895, he enrolled in the University of Oklahoma where he studied pharmacy and medicine. He studied medicine at Fort Worth and later took his medical degree from the University Medical College at Kansas City, graduating in 1906. Locating at Minco following graduation he continued the practice of medicine until the time of his illness.

Dr. Minco is survived by wife, his father and one brother, C. Ross Hume.

Interment was in the Minco cemetery.

ABSTRACTS : REVIEWS : COMMENTS *and* CORRESPONDENCE

EYE, EAR, NOSE AND THROAT

Edited by Marvin D. Henley, M.D.
911 Medical Arts Building, Tulsa

Toxic Amblyopia Due to Tobacco and Alcohol. Cordes and Harrington, San Francisco. Archives of Ophthalmology, March, 1935.

In 1896 de Schweinitz first wrote of amblyopia due to tobacco. Parsons later studying amblyopia from the use of tobacco thought the pathology was due to the vasoconstrictive action of the tobacco, mainly because of the already poor blood supply of the macular region. Pflimlin in the fifteen cases he reported in 1930, found a systolic blood pressure of 180 or more in the majority of the patients. He suggested that arterial spasm is an important factor in the development of such amblyopia and treated his patients with intravenous injections of a vasodilating agent consisting of inorganic salts, among which is sodium nitrite, in an isotonic solution of sodium chloride. All the patients so treated showed improvement. Other later investigators reported similar results.

Traquair of Edinburgh does not think that tobacco exerts its primary effect on the vascular system but rather poisons the nerve cells. The author on a recent visit to Edinburgh noted the unusually large number of patients there with tobacco amblyopia. It is much more common in Scotland than in America. The author raises the question as to why the incidence is greater in Scotland than it is here. He wonders if it is the kind of tobacco used or whether it is due to the fact that the people of Scotland smoke pipes more universally than do Americans who smoke more cigarettes, or whether there is a national sensitivity to poisoning by tobacco. It is not generally agreed, as noted above, whether tobacco acts as a vascular or nerve poison, but it is generally agreed that only those drugs having a direct effect on the circulaiton are of any benefit.

The author's method of treatment is outlined. Before starting treatment a general physical examination is done to eliminate any other complicating disease that might be present. He reports eight cases. Six of the eight patients received daily subcutaneous injections of a vasodilating agent consisting of inorganic salts, among which is sodium nitrite, in an isotonic solution of sodium chloride. The dose was 100 mg. in one cc. of the solution and the number of injections was determined entirely by the patient's response. One patient who was unable to continue his daily injections was given erythrol tetranitrate by mouth. Headache and abdominal discomfort were the only complaints following the ingestion of the tablet by mouth of erythrol tetranitrate. While the patients were under treatment they were cautioned about the use of alcohol and tobacco. The cigarettes were limited to four to six per day.

Some charts accompany this publication showing the fields taken from time to time during the treatment and the progress of the recovery and the gradual disappearance of the scotomas. The author is of the opinion that tobacco is a vasoconstrictor and that the primary etiologic factor in amblyopia due to tobacco or alcohol is spasm of the blood vessels. He believes that the vasodilating drugs are of the most importance in the treatment of this disease. Other vasodilators besides the one he mentions in his case reports would probably be as efficacious.

Malignant Tumours of the Nasal Mucosa. Dr. L. Woodhouse Price, Glasgow. The Journal of Laryngology and Otology, March, 1935.

The defense for this publication is the manifold types of malignant tumours of the nasal mucosa The preponderance of tumours of the mucous membranes of the mouth, tongue, larynx and pharynx is greater than that of the nose and nasal accessory sinuses. The mucous membrane of the mouth, tongue, larynx and pharynx is mainly stratified squamous or transitional epithelium. The mucous membrane of the nose and nasal accessory sinuses presents a greater variety.

Continuous with the external epithelium the membrane lining the alae nasi and extending up as far as the anterior part of the inferior turbinate is composed of stratified squamous epithelium. Above this and lining the whole of the nasal cavity and accessory sinuses with the exception of the superior meatus there is an epithelium which has come to be termed "respiratory." Histologically it is columnar ciliated epithelium of varying degrees of thickness in different situations and, in some places, presenting a pseudo-stratified appearance due to its transitional nature. In the superior meatus there is a special neuro-olfactory epithelium-olfactory cells with non-medullated nerve fibers passing to a relay in the olfactory bulb, sustentacular cells and basal cells. The transition between the above mentioned type of epithelium is more or less sharply defined with minor irregularities and variations, such as the columnar epithelium in the accessory sinuses tends to be lower or more cubical in form and over the turbinates the epithelium is tall and may be more than one layer deep.

Thirteen cases of malignant disease which clinically affected the antrum of Highmore are reported individually and in detail including the histology, post mortem findings (if one was obtained), etc. Eighteen microphotographs are reproduced. Tabie One gives an analysis of the tumours including age, site, histological type, duration, treatment and result. Table Two gives the most prominent signs and symptoms of the cases. Swelling was the earlicst and most constant sign.

The author's summary and conclusions are:

1. It has been shown that a wide range of malignant epithelial tumours arise in the mucosa of the nasal fossae and nasal accessory sinuses, corresponding to the diverse morphology of the normal epithelium of this region. 2. A series of cases is described and discussed, and it is concluded that

malignant tumours of this region possess highly lethal properties for which anatomical reasons are advanced. 3. The recognized difficulty of clinical diagnosis of nasal tumours is discussed, and a plea for early cytological examination of aspirated fluid is put forward. 4. The symptomatology of nasal tumours is discussed, and the frequency of extra-nasal symptoms in the absence of specific localizing signs is stressed. 5. The pathology of nasal tumors is discussed, and a simple classification is suggested according to the nature of the epithelium in which they arise. Consideration is given to the occasional occurrence of sarcomata and endotheliomata. 6. The invasion of the nasal fossae and nasal accessory sinuses by tumours of extra-nasal origin is discussed, and it is concluded that this region is invaded not uncommonly by tumours arising in the following situations: (a) epithelium of dentigerous origin; (b) glandular epithelium; (c) squamous epithelium of the palate and alveolar margin. 7. The complexity of tumours arising from para-dental epithelium is shown to be attributable to their origin from specific or multipotential cells derived from the "anlage" of the enamel organ.

Corneal Grafting—Reparative and Optical. Lieut.-Col. R. E. Wright, C.I.E., I.M.S., Madras. British Journal of Ophthalmology, June, 1935.

Elschnig is mentioned as having had brilliant practical results in man in a number of cases of corneal grafting. The author takes a case of a Descemetocele with an ulcer and does a corneal graft. The diameter of the Descemetocele was about 1.5 mm. The detail of the grafting was as follows:

The graft was taken from the cornea of a blind glaucomatous eye. An ordinary two mm. sclero-corneal trephine blade was first used to demarcate a disc to a uniform depth of about one-third the thickness of the cornea, then sloped to about forty-five degrees and rotated so as to cut through at one point. With a small Graefe's knife the disc was cut out, its edges of such a bevel that the endothelial aspect of the disc was distinctly less than two mm. It was transferred with due precautions as regards traumatism to a watch glass of olive oil and left there during the short time it took to prepare its bed in the fistulous eye. A two mm. trephine blade was employed to demarcate a circular cut around the healing edge of the ulcer and 1.5 mm. blade used to cut through at the base of the Descemetocele. Between these two circular incisions a bevelled edge was carefully cut with fine scissors. The graft was transferred from the watch glass with a smooth spatula. The retaining sutures, loosely placed in position beforehand, were then tightened over the graft. They were planned after the manner of Tudor Thomas. The terminal exits of these bites of these sutures in the cornea were close to the corneo-scleral junction. The thread used was fine silk sterilized in wax; the needles, Barraquer's fully curved, eyed, seven mm. point to eye. Liquid paraffin with atropine was instilled into the eye, and both eyes covered with vaseline lint and bandaged. On the fourth day the eye was examined. It was obvious that the graft had taken, the chamber had formed, and the epithelium was continuous over the junction. As an optional achievement the operation was a failure, but as a reparative procedure a success.

Another case is described in detail which illustrates three important features in connection with corneal grafting: 1. Anterior synechiae are not necessarily a contraindication to operation. 2. Large circular grafts may be used with as great ease as small ones, and as good a chance of a "take." 3. An eye blind of glaucoma is capable of furnishing a graft (this is important in India where such material is plentiful).

The leucoma of congenital syphilis is the ideal soil to work on, for the fairly obvious reason that capillary proliferation up to the junction can and does take place readily. In corneal grafting, uniform pressure—the secret of successful grafting—tends to be maintained by the lid pressure against the fluid intraocular bed, without elaborate aids from the surgeon.

The fact is deplored that there has been so much popular pictorial lay press publicity in regard to these operations.

Dysphonia Plicae Ventricularis. Chevalier Jackson and Chevalier L. Jackson, M.D's., Philadelphia. Archives of Otolaryngology, February, 1935.

"The retention of the term false vocal cords perpetuates the memory of a physiological error."—Sir Morrell McKenzie. The Jacksons disagree with the above statement. They say that he had never seen a case or he had not recognized the condition. Because of the fact that it is not generally recognized by the average laryngologist, it is hard to compile statistics in regard to its incidence. The authors estimate that four per cent of the hoarseness they encounter in their practice is due to this vicarious assumption of the phonatory duty by the ventricular bands. It may be a compensatory action for lost or impaired vocal cords. There may be an underactivity of the true vocal cords, an overactivity of the ventricular bands, an absence of the true vocal cords, a congenital anomaly, or a tumor mechanically propping the cords apart. Each condition is discussed. Other functions of the vocal cords than phonatory are: protective, tussive and expectorative. The function of the ventricular bands is to assist in the closure of the airway. With systematic training it is possible for the ventricular bands to assume the function of phonation, as for instance when a cord has been removed for early cancer without removal of any part of the ventricular band.

Under symptomatology the authors say: In a well established case of phonation with the ventricular bands the voice is rather deep in pitch and more or less rough in quality. In a case of very long standing in a patient who has taken especial pains to train the voice the phonation may be smooth and not far from normal in pitch. Double voice is nearly always present in the early stages of the dysfunction. The patient complains that his voice "breaks;" by this he means he can never be sure of the pitch; when he starts speaking, at times it may seem very good; at other times he may produce a deep or loud tone or may be unable to produce any sound above a whisper. Sometimes he may start speaking in a high-pitched tone, then the voice may break to a low pitch, and vice versa. Sometimes two tones are produced at once. In some of these cases the true cords and the ventricular bands both produce sound, usually alternating. Of course diplophonia may occur as the result of imperfect control, especially of imperfect action of the tensors; sometimes other muscles are at fault. The patient may complain of a feeling of local fatigue after using his voice for a long time. In some patients this comes on every evening and may be accompanied by aching and, rarely, by pain extending to the ears.

The treatment is systematic training and if necessary operation, being certain that the vocal cords can approximate, draw tense and vibrate, before any operating is done. The operation is nipping out a bit of tissue from the middle of the free edge of one or both ventricular bands.

ORTHOPAEDIC SURGERY

Edited by Earl D. McBride, M.D.
717 North Robinson Street, Oklahoma City

Congenital Defects of the Lumbosacral Joints with Associated Nerve Symptoms. A Study of Twelve Different Types with Operative Repair. Lewis Clark Wagner. American Journal of Surgery, Volume XXVII, Page 311, February, 1935.

Twelve cases are reported in detail in which the patients had various types of pain in the legs and back. The importance of the part played in these cases by congenital lumbo-sacral anomalies is well brought out. These anomalies are receiving more careful attention and are potential factors in the subsequent causes of low back pain. The symptoms usually occur in the third decade of life. The distribution of subjective pain may include the third lumbar segment to the third sacral segment, but it most frequently centers in the fifth lumbar and first and second sacral segments. In the author's series no definite paralysis occurred. Excision of long or impinging transverse processes is not satisfactory and may be associated with other changes and defects. Tumor of the spinal cord or radiculitis should be excluded. These cases explain causes of referred bizarre pain other than pressure or narrowing at the vertebral foraminae. The author's operative technique is well described and offers an excellent method of satisfactory and complete fusion of the lumbo-sacral area, including the articular facets. It seems superior to the use in this area, of the simple Albee graft which, unless carefully done, is usually difficult to fuse thoroughly.

Fractures de Monteggia. Alberto Inclan. Cir. Ortop. y Traumatol, Volume II, Page 203, 1934.

In an article on the subject of Monteggia's fractures (fractures of the upper third of the ulna with dislocation of the head of the radius), Prof. Inclan gives the results of his experience with this injury and discusses the etiology, pathology, and treatment.

He believes that such a fracture should always be regarded as serious, that it demands early treatment, and that the prognosis is increasingly unfavorable as the interval between the injury and the treatment lengthens. He states that, without the integrity of the ulna, it is difficult to maintain the head of the radius in position—there is a marked tendency to backward angulation of the ulna, delayed union is frequent, and radio-ulnar synostosis is not unusual. Therefore, correction must be maintained until there is complete union of the ulna.

The type of reduction selected, either open or closed, depends upon the individual case. The best position for immobilization is flexion at ninety degrees. The surgical repair of the old Monteggia's fracture is extremely difficult.

The histories of four recent cases and five old cases, treated on the author's Orthopaedic Service, are given. These cases illustrate very clearly the necessity of adapting the treatment to each individual case.

Disabilities of Hand Resulting from Loss of Joint Function. Sumner L. Koch. Journal of American Medical Association, Volume CIV, Page 30, January, 5, 1935.

Loss of motion in the joints of the hands presents a serious problem. Restoration of function by operative measures is uncertain and often unsuccessful. The difficulties encountered cause greater emphasis to be placed on the preventive treatment.

After joint fixation has occurred, some form of active treatment must be given in order to restore movement. Four methods are available; splinting and physical therapy, manipulation, extra-articular operation, and intra-articular operation.

In those cases in which fixation is not absolute, considerable improvement can be obtained by splinting and physical therapy.

Manipulation has been found to be useless except in cases of injury or infection in which intra-articular or peri-articular bands do not completely block movements, but limit them and cause pain.

Good results have been obtained by the author from an extra-articular operation in which the dorsal aponeurosis is divided and the collateral ligaments released.

Of the intra-articular operations, the author reports arthroplasties at the wrist, metacarpocarpal, metacarpophalangeal, and interphalangeal joints. The results have not been good in all cases. Of eleven arthroplasties of the wrist, the results are reported as excellent in four. The author concludes that, although the results in a number of cases are not perfect, definite improvement has been obtained in a number of instances and that, with greater operative care and more persistent efforts to secure active movements following operation, still better results can be obtained.

Influence de Quelques Metaux sur la Fixation des Composes Mineraux Dans Les Cultures D'Osteoblasties. Contribution A L'Etude Biologique de L'osteosynthese. G. Menegaux and D. Odiette. Press Medicale, Volume XLIII, Page 152, January 26, 1935.

Continuing their previously reported work on the influence of various metals on cultures of osteoblasts, the authors show that only three different varieties of steel, called V2A extra, Nicral D, and Platino-Stainless D, are available for use in subcutaneous fixation of bone defects. They had previously shown that practically all metals except these three and duralumin exercised a deterrent effect on the growth of bone cells. Their present studies confirm these previous observations by showing that duralumin must be added to the group of metals which exert a harmful influence on bone growth by their cytotoxic action, as well as by interfering with deposition of calcium salts.

DERMATOLOGY, RADIUM AND X-RAY THERAPY

Edited by William E. Eastland, M.D.
LAIN-ROLAND-EASTLAND CLINIC
705 Medical Arts Building, Oklahoma City

Roentgen Therapy of Actinomycosis. E. Gerard Smith, M.D., American Journal of Roentgenology and Radium Therapy, Volume XXXI, No. 6, June, 1934, Pages 823-29.

The literature, including European and American, has been exhaustively reviewed in regard to the radiation therapy of actinomycosis. It is interesting to note the anatomical location of the lesions in these cases. One hundred and twenty-nine cases were in the cervicofacial region, forty-five cases were abdominal lesions and twenty-one cases were thoracic lesions. Results obtained in

these cases are respectively as follows: improved, 9.36 per cent; healed, 83.44 per cent; died, 7.8 per cent. Abdominal lesions: improved, 13.13 per cent; healed, 37.74 per cent; died, 48.84 per cent. Thoracic lesions: improved, 9.52 per cent; healed, 9.52 per cent; died, 80.92 per cent. The author quotes nine cases of his own which cover a number of years dating back to 1919. During this period of time the technic of radiation therapy has varied considerably. In former years it was customary to give radiation with more superficial technic and thinner filtration, whereas, now the tendency is towards deep therapy, that is, 200 kv., with thicker filtration. In some of these cases iodides were used, whereas, in others, iodides were eliminated. Among the author's conclusions are: (1) x-ray treatment is a distinct advantage in the treatment of actinomycosis; (2) surgery is contra-indicated except the stab wound to establish drainage and to aid diagnosis; (3) deep x-ray therapy will improve the prognosis in cases of deep seated abdominal and thoracic lesions; (4) the dose should be as large as possible without the danger of harming the skin, the optimum dose being 800 r of deep therapy, equivalent to one erythema dose, utilizing 200 kv. x-ray therapy with 5 mm. cu. plus four mm. celluloid, given at intervals of one to two weeks through as many fields as are necessary.

Roentgen Therapy of Hyperparathyroidism. Edwin A. Merritt, M.D., and Edgar M. McPeak, M.D. American Journal of Roentgenology and Radium Therapy, olume XXXII, No. 1, July, 1934, Pages 72-81.

It is pointed out that osteitis fibrosa cystica is caused by hyperparathyroidism. The cardinal symptoms of this condition are pain, asthenia, loss of weight, muscular weakness, anorexia and constipation. Sometimes there is an accompanying secondary anemia and occasionally an elevation of temperature. Postural abnormalities are common in advanced cases and the blood calcium is usually elevated and the serum inorganic phosphorus decreased. The authors point out that only a minute quantity of the hormone produced by the parathyroid may cause considerably physiological changes. This being true they state that the surgeon is at a great loss to know just how much of the parathyroid gland to remove in order to obtain a proper balance of the endocrines; hence, it is recommended that these cases first be treated with x-ray therapy, as the results obtained by this measure are equally as good as surgery, and the procedure much more simple. Moreover, there is no interference with surgery if it becomes necessary later. In a series of six cases recorded the patient in general was treated as follows: roentgen therapy over each side of the cervical region, upper thorax and one over the neck posteriorly. The factors are 140 kv., 5 ma., 10-inch skin target distance, 10x15 cm. field, 6 m.al. filter and an exposure of 240 r to each field. Six to ten such series given at intervals of three weeks are necessary in most cases. Radiographs of the involved osseous structures accompany this article and show very nice results. All patients clinically were in good condition following the x-ray therapy.

Irradiation in the Treatment of Psoriasis. Rieva Rosh, M.D. American Journal of Roentgenology and Radium Therapy, Volume XXXII, No. 1, July, 1934, Pages 82-86.

It is stated in this essay that next to acne, psoriasis is the most prevalent dermatosis, causing no small amount of mental, physical and economic suffering. Since there is no specific nor permanent cure for this disease it is quite essential that some method be worked out to give greater relief than has been in the past. Attention is called to the work of Foerster and Foerster which was originated in 1921 whereby x-ray therapy was utilized for the purpose of treating psoriasis by radiation to the thymus gland. Jamieson reported fifty successfully treated cases by this same method over a period of six years. Schneider agreed with Martenstein and Haucks that there was no positive roentgen ray action on the thymus gland, and it was not correct to assume a physiological relationship between the thymus and psoriasis. Gawalowski sided with those investigators who thought that radiation of the thymus gland was of value in psoriasis, and reports a series of cases in which 65.8 per cent were successfully treated. In Bellevue Hospital, where the author is a staff member, psoriasis is treated by radiation to the sympathetic nervous system. The method there consists of the application of high voltage x-ray to the spine at those levels which correspond to the nerve supply to the affected areas of the body. Only three cases are definitely reported but it is stated that several other cases were treated similarly and received equal results. The closer a one hundred per cent erythema dose was approximated the better the results seemed to be, according to those cases reported. (Editor's note—In a very few cases of psoriasis treated by similar methods the results were not particularly encouraging other than can be obtained by various other methods of treatment; that is, the lesions clear up to come back again in some indefinite length of time.)

Ueber Die Angebliche Aussichtslosigkeit der Strahlenbehandlung beim Drusenkrebs im Collum Uteri. (The Reputed Hopelessness of Radio Therapy of Adenomas of the Cervix.) P. Feldweg. Strahlentherapie, 1913, 46, 110-118. (Abstract from The American Journal of Roentgenology and Radium Therapy, Volume XXXII, No. 1, 1934. Page 144.)

It is a well known fact that adenomatous carcinomas of the cervix are more resistant to irradiation than pavement cell carcinomas. The prospects for cure in these cases have been considered very poor, though cases of cure have been reported, showing that the outlook is by no means hopeless.

The author reports twenty-seven cases of adenoma of the cervix, twenty-four treated by radium irradiation and three by operation. They show that there is an undoubted relationship between the size of the dose and the course of the disease. With a dose of 300 mg-hr. or less eight patients survived one year or more, one three years or more and none five years. With a dose of 5,000 mg-hr. four patients survived a year, five three years and one is well after more than five years. With a dose of 9,000 mg-hr. two patients survived more than three years and one is well after more than five years. Both of the patients who were cured were given what was more than the average dose at that time.

Histological examination as well as clinical experience shows that adenomas of the cervix should be treated with as large doses of radiation as possible in as short a time as possible.

—Audrey G. Morgan.

Zur Strahlentherapie der Basedow's Schenkrankheit. (Roentgen Therapy of Basedow's Disease.) Max Ludin. Acta Radiol., 1933, 14, 28-32. (Abstract from American Journal of Roentgenology and Radium Therapy, Volume XXXII, No. 1, July, 1934, Page 138.)

The author is an ardent partisan of the roentgen

therapy of Basedow's disease and says that the only objections made to the treatment are made by surgeons. He even accuses the surgeons of unfairness in the manipulation of statistics to the disadvantage of roetngen therapy.

The arguments urged against roentgen therapy by the surgeon are: (1) the danger of irradiation; (2) the long duration of the treatment; (3) the recurrences; (4) the lack of demonstrable histological changes in irradiated goiters, and (5) the deaths.

With reference to the first point he says that adhesions of the capsule have been observed after irradiation, but they do not interfere with operation if it becomes necessary later. The necroses of the larynx and myxedema that were formerly sometimes seen after intensive irradiation are no longer seen with the improved technique now in use. The treatment does require a longer time than surgery and the latter is sometimes to be preferred for that reason. He also admits that recurrences are more frequent after irradiation than after surgery. It is true that there has been no histological demonstration of anatomical changes in the thyroid after irradiation but that does not affect the value of the cures. Deaths after irradiation in Basedow's disease are often due to the fact that this treatment is given as a last resort in hopeless inoperable cases. The patients die in spite of the treatment, not because of it, and the deaths should not be attributed to it.

—Audrey G. Morgan.

SURGERY AND GYNECOLOGY

Abstracts, Reviews and Comments from
LeRoy Long Clinic
714 Medical Arts Building, Oklahoma City

The Superior Laryngeal Nerve and the Superior Pole in Thyroidectomies. By Charles H. Frazier and William H. Erb. Annals of Surgery, June, 1935.

"We have reached an impasse in the treatment of thyrotoxicosis by accepted agencies, medicinal, the roentgen ray, surgery. We know the limitations of some, the wide field and usefulness of others. There is no doubt that in course of time a new remedy will be forthcoming, a specific, and organic compound which will provide the economy with what it needs and arrest this hyperplastic process. We have already seen what a profound influence iodine or the iodides have over this process: how in the space of a week or ten days the clinical and pathologic aspects will be so profoundly affected; the metabolic and pulse rate cut in half, the nervousness gone, the proliferated cells in the acini replaced with colloid, the patient half well. Soon, I believe this new remedy will be found, and, supplementing iodide, complete the cure.

"Until then we must be content with other agencies and of these surgery gives eminent satisfaction. We acknowledge relapses in three per cent, but all in all there are no patients more grateful than the thyrotoxic subjects who have been relieved by surgical procedures."

The hazards of the operation have been reduced from year to year. The profession must not be alarmed by mis-statements that creep into the literature. For example, one radiologist recently has announced an operative mortality rate of from zero to twenty per cent, and another nondescript writer charges surgical therapy with recurrence in over twenty per cent. These statements are preposterous. In the average well organized clinic, depending upon the nature of the material, the mortality for toxic goiter ranges from one to three per cent. It so happened that in Dr. Frazier's clinic in the year of 1932 the mortality rate was zero. But having deducted operative hazards to a minimum, Dr. Frazier and his associates have turned their attention to the elimination of post-operative discomforts.

In the past, after a thyroidectomy, many patients were very uncomfortable from accumulations of mucous in the trachea, frequent short cough, efforts of expectoration which were painful, pain on swallowing or various reflex pains. These discomforts Dr. Frazier and his associates feel can be done away with if there is sufficient care in dissecting and tying off the superior thyroid artery and vein. If such care is taken the superior laryngeal nerve will not be injured. In the past during the performance of a thyroidectomy surgeons generally have not been particularly careful in avoiding injury to the superior laryngeal nerve. The surgeon's mind has been focused on two structures, the parathyroid glands and the recurrent laryngeal nerves, and little attention has been paid to the superior laryngeal nerve.

The superior laryngeal nerve supplies the interarytenoid muscles, which are adductors of the posterior ends of the vocal cords. Thus, if both superior laryngeal nerves are damaged, there may be partial loss of voice. Furthermore, with injury to these nerves there may be loss of sphincteric action of the upper portion of the larynx; thus, fluids may enter the air passages.

In this article they describe a method of ligating the vessels of the superior pole and not injuring the superior laryngeal nerve, either its external or internal branch. Traction or rough manipulation of the pole itself or the structures to the inner side of it, is to be avoided. With adequate exposure dissect the superficial flap of skin and platysma at least to the upper level of thyroid cartilage, and then bisect the ribbon muscles on one side or the other, with wide retraction of the wound edges. When the pole is clearly in view, Dr. Frazier divides this reflection of the pretrachial fascia, either by blunt or sharp dissection. In the trough between these two walls of fascia lie the superior thyroid artery and vein and these may be tied, either together or separately. Thus, both branches of the superior laryngeal nerve escape injury.

LeRoy D. Long.

Serious Hand Infections. By Louis P. Gambee. The Western Journal of Surgery, Obstetrics and Gynecology, August, 1935.

It is generally known that the average member of our profession is not treating hand infections as well as he is the other common surgical diseases. It is generally felt by those who have studied this field of surgery most carefully, that a large part of the permanent disability which follows these infections must be charged to our incompetence. This is a serious indictment.

In this paper Dr. Gambee confines his discussion to the essential features of the three most common hand infections—acute lymphangitis, pyogenic tenosynovitis, and the fascial space infections.

He draws important conclusions which are commonly accepted but cannot be stressed too strongly.

1. Cellulitis of the hand is not a localized process. It is diffuse and must never be incised unless localization finally takes places and fluctuation can be demonstrated.

2. Pyogenic tenosynovitis and fascial space in-

fections of the hand must be drained as soon as a diagnosis can be made.

3. Tenderness over the involved sheath associated with throbbing pain; a semi-flexed position of the finger, and a marked increase in pain upon forcefully extending it, make a diagnosis of flexor tendon sheath infection quite definite.

4. A bulging is found replacing the usual concavity of the palm of the hand when there is a midpalmar space infection.

5. Swelling and tenderness over the thenar area usually indicates a thenar space infection.

6. Serious hand infections are major surgical problems. Operations on them must be done under general anesthesia after a bloodless field has been insured.

7. The incisions used for draining these hand infections must secure free drainage and must not cut arteries, nerves or annular ligaments. The incisions must not cross major creases of the hand at right angles.

One cannot too strongly emphasize the importance of articles such as this. Dr. Gambee has made an effort to simplify the subject so that it can be easily understood. LeRoy D. Long, M.D.

Gee's Disease (La Maladie de Gee). By T. Izod Bennett, Middlesex Hospital, London. La Presse Medicale, Sept. 19, 1934.

I have just run across this article by Bennett. While it is not of a strictly surgical character it is important from the point of view of differential diagnosis.

According to the author, the disease was first described by Samuel Gee, of St. Bartholomew's Hospital, London, in 1888, and was called by him "Coeliac Disease." The author believes this name is too restricted, and since Gee gave a very accurate description of the disease he believes that it would be just and proper to have his name connected with it.

The disease always begins in childhood, and is characterized by: 1. Steatorrhea, provoking sometimes diarrhea. 2. Anemia of various types. 3. Tetany, latent or acute. 4. Infantilism. 5. Deformities of bones.

The following report gives a good mental picture of the very advanced clinical manifestations: A young girl was admitted to Middlesex Hospital. The first striking thing about her was great deformity of the bones. The legs were incurved, the knees deformed. There were deformities of some of the epiphyses of the long bones. The ribs were deformed. The mother said that throughout her life there had been a tendency to curvings of the bones and fractures. She was seventeen years of age, but had never been able to run, and, for the most part, not able to walk. At the age of two years the left humerus had bent under the weight of the body while in bed. At three years of age there was a diagnosis of rickets. At fourteen years of age osteotomy of each femur, but deformity returned as soon as walking was attempted. There had been multiple fractures, followed by rapid repair. During the entire life of the patient the abdomen had been distended considerably. In infancy there was diarrhea. After five years of age there was no distinct diarrhea, but the stools were abundant and pale. In the eighteenth year a pernicious type of macrocytic anemia developed, terminating in death of the patient.

In the cases studied by the author, the blood calcium was below normal. He believes that there is excessive deperdition of calcium by the intestine in the form of soaps. The blood phosphorous was low, too, and it is believed that it is linked with a deperdition of this body by the intestine.

LeRoy Long.

The Treatment of Acute Parotiditis by the Intravenous Injection of Animal Charcoal (Le Traitement des Parotidites Aigues par les Injections Intraveineuses de Carbone Animal). By Eugene St. Jacques, Surgeon Jeanne d'Arc Hospital, Montreal.

Referring to previous communications about the employment of animal charcoal in various types of infectious processes, the author calls attention to its employment in acute parotiditis, and in that connection makes several case reports as follows:

Case 1. Acute parotiditis following acute tonsillitis. Temperature 101 F. Injection, intravenous, of three cc. of two per cent animal charcoal (carbone animal). Immediate drop in temperature with rapid cure.

Case 2. Young woman of twenty years, nurse. Acute parotiditis following acute tonsillitis with suppuration. Temperature 102 F. Had been treated by vaccines. Intravenous animal charcoal three cc. two per cent suspension. The next day there was less pain, but a temperature a little higher. Another intravenous injection of three cc. two per cent suspension of animal charcoal. There was rapid drop of temperature, and within a few days the patient was well.

Case 3. Woman of thirty-eight years. Sub-total hysterectomy with bilateral salpingectomy and appendicectomy. Three days after operation there were signs of parotiditis. The temperature was 102 F. Intravenous injection of three cc. of two per cent suspension of animal charcoal. The next day the temperature was 101. It was about the same the day following, and there was another injection of four cc. of two per cent animal charcoal. This was followed by rapid improvement and apparent cure.

There are two other case reports of a similar character.

The author says that in the treatment of acute parotiditis by intravenous injection of animal charcoal the first effect noticed after the injection is the disappearance of pain, and this is soon followed by a drop in temperature.

He believes that if the difficulty is recognized at the beginning, the intravenous injection of the animal charcoal will cure the patient without suppuration.

Comment:

As stated in former abstracts of articles about this procedure, it is perfectly clear that in the preparation of the charcoal there must be facilities for reducing it to its utmost fineness, and it must be perfectly sterile. St. Jacques employs a two per cent suspension in sterile distilled water, preserved in sterile ampules. He insists that only animal charcoal ("carbone animal") should be employed. LeRoy Long.

Lobule of the Nose Completely Sectioned and Sutured Three Hours After the Accident. (Cure-Lobule Nasal Sectionne Completement et Suture Trois Heures Apres L'Accident. Guerison.) By J. N. Roy, F.A.C.S., Professor, University of Montreal. L'Union Medicale du Canada, August, 1935.

A boy of seven years, while at play, struck his head against the glass of an automobile lamp with such force that the glass was broken and the face pushed through the opening. In withdrawing the face, a part of the lobule of the nose, about five centimeters long, and about thirteen milli-

meters wide, and consisting mostly of skin, was cut off. The patient at once put his hand over the nose, and went into his home, where compresses were applied because of free hemorrhage. A little later he was taken to hospital. In addition to the wound of the nose, there were several other important wounds about the face.

On learning that the tip of the nose had not been brought with the patient, the father of the patient was sent home to look for it, and he found it in a room on a carpet. It was in the month of March, and the weather was rather cool. It was not very warm in the room. The father brought the piece of the nose to the hospital where the reporter was repairing other wounds about the face. It was washed in tepid physiologic salt solution, and then placed in the same solution at a temperature of 37 degrees Centigrade (98.6 F.). At almost exactly three hours after the accident, the wound of the nose was cleaned with physiologic salt solution, and the detached part of the lobule was sutured in place with fine silk threaded in fine conjunctiva needles. The nose was then dressed with light compression, and a copper splint molded about it to maintain compression and immobility.

The dressing over the particular areas involved was not disturbed until five days after the operation. At that time it was covered by dry blood with a reddish coloration about the center which seemed to indicate the presence of vitality. This layer of dry blood gradually disappeared, and the sutures were removed about nine days after the operation. The repair was complete on the right side of the nose, but there was a slight defect on the left side. Altogether, the results were very satisfactory. This is indicated by photographs accompanying the article.

The reporter refers to the work of Carrel which proves that vitality can be maintained in detached tissue if such tissue is preserved in a refrigerator, or if it is placed in a fluid approximating the plasma of the blood. In this case, the detached tissue was preserved in physiologic salt solution, which approximates blood plasma, for a short period of time, but before that it was in a room that was relatively cool.

The reporter is very strongly of the opinion that plastic work of this character is much more successful if there is no attempt to use bactericidal agents or even antiseptic agents, such as solutions of various salts of mercury, because such agents interfere with the vitality and normal activity of the cells. It will be observed that in this case the cleansing was done by the use of physiologic salt solution only.

Comment:

Several requirements are of particular importance in connection with plastic work, the most essential of which may be enumerated as follows:

1. The areas should be as clean as possible, but no agent that would interfere with cell production ought to be used.

2. All hemorrhage should be controlled before the graft is applied.

3. There should be accurate suturing of the graft. This is of particular importance in connection with wounds about the face.

4. Usually, it is well to make some openings in the graft so that accumulated serum and blood may be discharged.

5. There should be accurate dressing in a way that will, as nearly as possible, immobilize the part involved, and, at the same time, produce enough pressure to keep the parts in accurate contact.

6. After the operation is finished, and the dressing applied, there should not be any meddling with the operative area before some days, unless there is some definite reason for looking into it. Early manipulation may destroy newly formed blood vessels, and seriously impair the vitality of the tissues involved. If the part is comfortable, it is distinctly unwise to remove a covering of dried blood.

7. If fine sutures are used, it is a mistake to remove them too early. The early removal of sutures involves handling the operative area, and producing manipulations which should be avoided until there is clear evidence of satisfactory union.

LeRoy Long.

Intraspinal (Subarachnoid) Injection of Alcohol for Pain Associated with Malignant Conditions of the Female Genitalia. J. S. Greenhill, M.D., and Herbert Schmitz, M.D., Chicago. Journal A. M. A., August 10, 1935, Page 406.

These authors are reporting a series of twenty-five patients who have been treated by intraspinal (subarachnoid) injections of alcohol for pain associated with malignant conditions of the female genitalia.

They call attention to the pertinent fact that at least seventy-five per cent of all women who have carcinoma of the cervix die as a result of the condition, and that, secondly, nearly all these women suffer severe pain during the latter part of the disease. They review the present means for relief of pain: 1. Administration of derivatives of opium, chiefly morphine. 2. The use of the surgical operations of: (a) pelvic sympathectomy, (b) chordotomy. 3. The relief of pain by blocking the nerves that conduct pain sensation.

The disadvantages and advantages of the various methods are briefly outlined.

The previous reports upon the use of intraspinal (subarachnoid) injection of alcohol are carefully reviewed, including the works of Dogliotti, Yeomans, Saltzstein and Stern.

The technic of injection is described by Greenhill and Schmitz with considerable care. They have made a practice of using 95 per cent alcohol and at the present time are using a maximum of .5 cc. for each injection.

They then give their analysis of the results in the twenty-five patients here reported. Twenty-four of the twenty-five "have been relieved of their suffering."

"The complications that followed the alcohol injections were numbness of the leg for three days, six; numbness of the leg for more than three days, six; and in one case each, urinary retention for two days (had bladder invasion of carcinoma), urinary incontinence the first night, pollakiuria, "leg cold at night," paralysis of the leg for one and one-half hours, anesthesia and atrophy of the leg, and diarrhea for twenty-one days."

The conclusions drawn by Greenhill and Schmitz upon the basis of this experience in twenty-five cases are as follows:

"Our experience with twenty-seven subarachnoid injections of alcohol in twenty-five women with advanced carcinoma of the genitalia leads us to recommend this procedure in all women who suffer from excruciating and persistent pain that is associated with genital carcinoma. This injection is simple to carry out, it entails very few risks, and it has brought relief to twenty-four out of our twenty-five patients. Because it is simpler than any operative procedure and because the results are so satisfactory, we are now using it in pre-

ference to pelvic sympathectomy, which we advocated two years ago for the same purpose. We shall resort to sympathectomy in the cases in which alcohol injections fail. Until we know more about the late effects of ninety-five per cent alcohol on the spinal cord itself, it is best to restrict subarachnoid injections to patients in whom the malignant condition is far advanced."

Comment:

In September of 1934 the reports of Saltzstein were abstracted by me for this journal. This additional report by Greenhill and Schmitz is a very encouraging one. All of us are familiar with the disadvantages of the tremendous doses of opiates necessary in the far advanced pelvic malignancies. We are also familiar with the difficulties associated with sympathectomy and chordotomy in this situation. I have looked with favor for some time upon this method of blocking the sensory nerves as a possibility of great service in these far advanced malignancies where great pain is suffered. I thoroughly agree with Greenhill and Schmitz that this method for the relief of pain should for the time being be strictly limited to patients in whom malignant process is far advanced.

Wendell Long.

INTERNAL MEDICINE

Edited by C. E. Bradley, M.D., Medical Arts Building, Tulsa; Hugh Jeter, M.D., 1200 North Walker, Oklahoma City

By C. E. BRADLEY, M.D.

Encephalitis Complicating German Measles—Report of a Case. H. O Skinner, M.D., St. Paul, Minn. Journal American Medical Association, Volume 105, Number 1, July 6, 1935.

A case of a normal, well nourished male child, ten years of age, who developed encephalitis five days after contracting German measles is reported.

Apparently canvalescing from an ordinary case of German measles, he suddenly fell unconscious, and when examined immediately afterward showed pupils widely dilated and without reflex. The superficial reflexes were absent, the patellar were faint, and Babinski's sign was positive. The ear drums were normal. He was restless, and resistive, but not convulsive or rigid. His pulse was slightly decreased and temperature was normal. Morphine was given then and again in the evening.

Examination of lumbar puncture fluid and urinalysis, which were made the following day, were both negative.

A neurologic consultant confirmed the diagnosis of encephalitis.

A magnesium sulphate enema followed by a retention enema of dextrose in saline was given.

The second day of unconsciousness, he had a slight temperature, which reached 103 on the third day. On the fourth day his temperature was normal; he relaxed and asked for food although he didn't eat it. The fifth day he was slightly confused and complained of a headache; all symptoms had disappeared on the sixth day, and he has remained completely well.

The short and mild course of encephalitis following German measles is characteristic.

NOTE: The author of the abstract wishes to call attention to a case from his practice which indicates that encephalitis following German measles is not always mild. Three days after the eruption of German measles the patient developed headache, convulsions and coma. Examination of the spinal fluid, including culture, was negative. A diagnosis of encephalitis was made and the child died thirty-six hours after the onset of the illness. Postmortem examination showed edema and inflammation of the meninges and nothing more.

Clinical Manifestations of Calcium Deficiency in Infancy and Childhood. Harold T. Nesbit, M.D., Dallas, Texas. American Journal of Diseases of Children, Volume 49, Number 6, Page 1449, June, 1935.

The author presents thirty-six cases from his practice in the last eighteen months whose various symptoms were relieved by calcium therapy.

The patients ranged from one day to sixteen months of age, three being eight, nine and eleven years of age. They exhibited the following symptoms, either on examination or in case history, in various combinations: hypertonicity, carpopedal spasm, Chevostek's sign, Trousseau's pnenomena, spontaneous and provoked spasm, enterospasm, flatus, excessive crying, retractions of the head, pyloric spasm, sleeplessness, stridor, cyanosis, convulsions, and irregular respiration.

It is interesting to note that many of these patients showed the same symptoms as did those of Aldrich's series in which he stated the symptoms were of interest from the standpoint of status lymphaticus. Twelve of this series showed anenlarged thymus when examined by roentgen ray; but the eight who received roentgen ray therapy received only transit or no relief, with one exception which was completely relieved.

Calcium therapy was not instituted until other factors such as diet, and treatment with x-ray, atropine and phenobarbitol had been found ineffective.

Serum calcium values before calcium therapy was instituted ranged from 7.75 to 11.3 mgg. per 100 c.c. of serum, and showed a slight rise after therapy was begun.

Calcium gluconate was administered orally, and intramuscularly with parathyroid extract. Cod liver oil and viosterol were administered when they were not already being given. Symptoms were promptly relieved in all cases when calcium therapy was instituted and recurred when it was discontinued. In one case it was necessary to increase the dosage of calcium on rainy days.

A review of these cases gives rise to a question as to whether or not the roentenologist and pediatrican have not overestimated the influence of the size of the thymus gland in cases showing cyanosis, stridor, retraction of the head, and irregular breathing. This series indicates that the total serum calcium and the diffusible (spinal fluid) calcium are both increased under roentgen ray therapy; consequently the relief which this therapy gives in cases of supposedly enlarged thymus may be due to a restoration of the calcium level rather than to an atrophy of the thymus gland. It is interesting to note that enlarged doses of calcium and parathyroid were necessary on days when the sun was hidden. Higgins and Sheard have demonstrated that an increased demand for the parathyroid hormone is made in both patients and chicks when vitamin D is lacking, but with an abundant supply of this vitamin the demand is lessened.

A syndrome of increased neuromuscular irritability and functional imbalance occuring in infancy was described which was strikingly relieved by measures that improve the absorption of calcium. The prompt relief afforded by calcium therapy in each of the thirty-six cases cited encourages

one to attribute the underlying cause to some error in mineral metabolism.

Constipation in Children: Its Effects Upon Body Mechanisms. Irving A. Frisch, M.D., New York, N. Y. The Journal of Pediatrics. Volume 6, Number 6, Page 784, June, 1935.

Because the author felt that the importance of an inadequate bowel evacuation as an etiological factor in a wide range of conditions especially those associated with convulsions or fever was a bit far fetched, he conducted a study on a series of seventeen children, between the ages of four and twelve years of age, in whom evacuation of the bowel was either absent or inadequate during the course of a number of days.

Twelve of the children were normal physically at the onset of the experiment, while the remaining were suffering from some fever-producing disease at the onset and during the course of the experiment. Each child was carefully observed during a control period of five days, in which the temperature and pulse rate were taken every two hours, and in which complete blood counts, sedimentation rate, blood chemistry and urine examinations were made. Constipation was produced by the use of deodorized tincture of opium, all other controllable factors in the child's diet and environment remaining unchanged. The observations reported above were then continued, and the blood examinations were repeated every six days.

The children were observed from sixteen to sixty-eight days, and although complete obstipation was not obtained in any case, on an average of one small, hard, dry stool was obtained every eleven days—however, two children went over twenty-five days without evacuation. In order to produce constipation thirty-five to seventy-five minims of opium were given daily; contrary to the general conception these large doses of opiate were well tolerated.

The children seemed happy and comfortable throughout the experiment; they did not complain of headache, lassitude, bad taste or the other symptoms often associated with constipation.

OBSERVATIONS:

1. No effect whatever on the temperature of the children undergoing the experiment could be noted.

2. Pulse rates were similarly unaffected.

3. No effect on the hemoglobin, red blood cell, white blood cell, or differential counts could be observed.

4. Sedimentation time was unaffected in either the febrile or afebrile cases.

5. Urea nitrogen, non-protein nitrogen, creatinine, and cholesterol, and blood indican remained unchanged throughout the experiment. There was an increase in the urine indican, however.

6. There was no change in the urinary findings except the increase in indican. One girl developed urinary frequency which was attributed to the pressure of impacted feces. However, there was no evidence of albumin or increase in pus cells.

7. Basal metabolism tests were made in two cases at the onset and in the terminal stages of the experiment with no appreciable change.

8. X-ray examinations of the gastro-intestinal tract in three cases revealed a similar picture in each case: there was normal gastric motility, gaseous distension of the small intestine, and a colon packed full of feces.

Thus it can be said with a fair degree of certainty that an infrequent or inadequate bowel evacuation cannot experimentally be demonstrated as producing harmful effects in children.

NOTE: This study bears out the contention of the abstractor that the importance of laxatives and incomplete or absence of daily evacuation of the bowel has been greatly overestimated. Too often laxatives are given with no consideration of the character or amount of food ingested.

By HUGH JETER, M.D.

The Present Status of the Problem of "Rheumatism;" A Review of Recent American and English Literature on "Rheumatism" and Arthritis. By Philip S. Hench, M.D., F.A.C.P., Rochester, Minn. Walter Bauer, M.D., F.A.C.P., Boston; Almon A. Fletcher, M.D., Toronto; David Ghrist, M.D., F.A.C.P., Los Angeles; Francis Hall, M.D., F.A.C.P. Boston; and Preston White, M.D., Charlotte, N. C.

PART III

This is from a report prepared at the request of the American Committee for the Control of Rheumatism, and by a sub-committee of the same organization.

CHEMICAL AND ENDOCRINE ARTHRITIS

Gouty arthritis, arthritis of serum sickness, hemophilic arthritis, possibly allergic arthritis from food, and ochronosis with alkaptonuria are termed chemical arthritides.

Gout has not become extinct as recent literature might indicate, neither has it "gone modern" or changed its character. It may be confused, however, with acute rheumatic fever or chronic arthritis. "There are sharp divisions of opinion as to whether an entity such as climatic arthritis or any other form of "endocrine arthritis" really exists. Saxon and Jezierski (1931) favor the existence of such an entity. Saxon cites the usual arguments; frequent coincidence of menopause and hypertrophic arthritis occasional lowered metabolic rate in both types, prevalence of arthritis where goiter is endemic, * * *" The x-ray diagnosis does not necessarily coincide with the clinical diagnosis, the latter being more important in the final classification.

TREATMENT OF GOUT

This is not specific in any regard. "The classic treatment of gout by restriction of purine, hot or cold applications, rest, and by preparations of colchicum and cinchophen, continues unchallenged." There is some danger in the administration of cinchophen. Hench concluded that if other analgesics are effective, cinchophen products should be avoided. Cinchophen is sold in so many preparations and under so many names that it is almost impossible for patients taking medicine for chronic pain, rheumatic or otherwise, to avoid it, one time or another.

Modern investigators have suggested that allergy may be a cause of gout, but the concensus of opinion is decidedly against this theory.

Salicylates in the treatment of gout are often effective and much less dangerous than many other preparations.

HEMOPHILIC ARTHRITIS: "Bleeder's Joints"

Key has given for the first time in English a detailed report on its pathology and Keefer and Myers describe clinical and roentgenologic features in five cases, with a review of the literature. Diagnosis rests chiefly on the tendency to bleed and after the onset of acute joint swelling or minor injuries. Coagulation time is usually increased, but may be normal.

TREATMENT

Several investigators have used theelin intramus-

cularly on the basis of a lack of hormone, since this is a disease of the male only. Bernstein gave ten to fifteen c.c. of whole blood intramuscularly every other day, taking the blood from the patient's mother during her menstrual period. Chalier considers frequent injections of mother's serum the most efficient treatment of all.

Rest and immobilization are considered very important.

Hemorrhagic joint conditions may be associated with purpura.

MISCELLANEOUS TYPES OF JOINT DISEASE

Intermittent hydro-arthrosis, "Mixed Types" of Joint Disease, psoriatica, arthritis and leukemia, "Hysterical Joints," periarthritis of the shoulder, and several various diseases of muscles and fibrous tissue are briefly discussed.

SCIATICA

The ultimate success in treatment depends on determining the likely one of the many causes. In general, rest in bed, heat, and analgesic drugs. Epidural injection is advised when necessary. Detailed investigation must follow the acute phase. Various results of various types of treatment in the lumbosacral fusion, injections and diathermy, a belt, Buck's extension, foreign protein, removal of foci, etc., have been used by different investigators with variable results.

International Assembly Inter-State Post Graduate Medical Association of North America Will Be Held in Detroit This Year

The International Assembly of the Inter-State Post Graduate Medical Association of North America will be held this year in Detroit and those of us who attended the meeting of the American Medical Association in that city know that they have every facility for caring for this large meeting, the Masonic Temple being one of the most comfortable auditoriums as well as possessing acoustic properties second to none in this country.

The hotel facilities of Detroit are ample to care for this large assembly and there is no reason why this should not be one of the best meetings held by this organization.

The half page advertisement carried in this Journal gives a list of speakers and they will produce a program comparable to those of preceding meetings.

It is the opinion of the Editor of this Journal that there is no meeting held at which a doctor can receive as much general and practical information as will be obtainable at this session.

Report of Examination for Licenses to Practice Medicine

Examination held at Biltmore Hotel, Oklahoma City, June 5th and 6th, 1935. The following applicants passed:

Name	Year of Birth	Place of Birth	School of Graduation	Year of Graduation	Home Address or Previous Location
Adams, Richard Martin	1907	Little Rock, Ark.	University of Okla.	1934	Hobart, Okla.
Appleton, Meredith M.	1908	Buffalo, Oklahoma	University of Okla.	1934	Oklahoma City, Okla.
Bunn, Arthur W.	1879	Rowell, Arkansas	Univ. of The South	1902	Savanna, Okla.
Collopy, Paul Joseph	1906	Milwaukee, Wis.	Univ. of Wisconsin	1933	Oklahoma City, Okla.
Crane, Francis S.	1909	————, Texas	University of Okla.	1933	Pine Valley, Okla.
Eschenbrenner, John Wm.	1905	East St. Louis, Ill.	Washington Univ.	1929	Ardmore, Okla.
Hoot, Melvin Phillip	1909	Arkansas City, Kan.	University of Okla.	1934	Ponca City, Okla.
Lennard, Oscar Lewis	----	Graham, Texas	Gate City Med. Col.	1907	Colbert, Okla.
Madeley, Howard R.	1909	Stockton, Calif.	University of Okla.	1934	Brooklyn, N. Y.
Morris, David Gordon	1903	————, Kan.	University of Okla.	1934	Oklahoma City, Okla.
Patton, Doyle Leroy	1905	Wooster, Oklahoma	University of Ark.	1932	Tishomingo, Okla.
Seyler, Lloyd Everett	1905	Butler, Penna.	University of Penn.	1931	Oklahoma City, Okla.
Shipp, Jesse D.	1910	Hugo, Oklahoma	University of Okla.	1933	Tulsa, Okla.
Simon, John Franklin	1908	Garner, Kan.	University of Kansas	1933	Alva, Okla.
Smith, Wendell Logan	----	Topeka, Kan.	University of Okla.	1933	Oklahoma City, Okla.
St. Peter, Montreville Alfred	1888	Pittsburg, Penn.	Univ. of Pittsburg	1910	Elk City, Okla.
Wallace, DeLoss Arnold	1902	Cedarvale, Kan.	University of Okla.	1934	Denver, Colorado
Waters, Floyd L.	1908	Maramec, Okla.	University of Okla.	1934	Oklahoma City, Okla.
White, James Halley	1906	Salt Lake City, Utah	University of Okla.	1934	Shawnee, Okla.
Winston, John R.	1908	McMillan, Okla.	University of Okla.	1933	Temple, Texas
Anderson, Haskell Reynolds	1907	Frederick, Okla.	University of Okla.	1934	Mt. View, Okla.
Blue, Johnny A.	1902	Ru, Texas ,	University of Okla.	1934	Oklahoma City, Okla.
Boswell, William Eugene	----	Leedy, Oklahoma	University of Okla.	1934	Henderson, Texas
Brady, Charles Joseph	----	Lake Geneva, Wis.	University of Wis.	1934	Lake Geneva, Wis.
Dunnington, W. Glenn	1910	Cherokee, Okla.	University of Okla.	1934	Cherokee, Okla.
Fry, Powell Everett	1910	Frederick, Okla.	University of Okla.	1934	Frederick, Okla.
Hargrave, Fred T.	1905	Locksburg, Ark.	University of Okla.	1934	Checotah, Okla.
Hardman, Thomas James	1910	Tulsa, Okla.	University of Okla.	1934	Tulsa, Okla.
Johnson, E. Ossip	1908	West Plains, Mo.	University of Okla.	1934	Tulsa, Okla.
Lively, Claude E.	1902	Woodard, Okla.	University of Okla.	1934	McAlester, Okla.
New, William Neil	----	Atoka, Okla.	University of Okla.	1934	Guthrie, Okla.
Nelson, James M.	1905	Doyles, Okla.	University of Okla.	1934	Marais, Minn.
Owen, Cannon Armstrong	1909	Magnolin, Ark.	University of Okla.	1934	Oklahoma City, Okla.
Parker, Warren Elmer	1909	Wadena, Minn.	University of Minn.	1934	Oklahoma City, Okla.
Robberson, Morton E.	1910	————, Okla.	University of Okla.	1934	Oklahoma City, Okla.
Smith, Haskell	1909	Dustin, Okla.	University of Okla.	1934	Hanna, Okla.
Spann, Logan A.	1905	————, Ark.	University of Okla.	1934	Tulsa, Okla
Starkey, Wyane A.	1906	Martha, Okla.	University of Okla.	1934	Altus, Okla.
Taylor, John Robert	1905	Hugo, Okla.	University of Okla.	1934	Oklahoma City, Okla.
Vanlandingham, Homer W.	1905	————, Okla.	University of Okla.	1934	Oklahoma City, Okla.
Wolff, Eugene G.	1901	Waukomis, Okla.	University of Okla.	1934	Waukomis, Okla.
Zeigler, Joel	1900	Oakhurst, Texas	University of Okla.	1934	Shamrock, Texas
Zeigler, Paul	1909	Shamrock, Texas	University of Okla.	1934	Shamrock, Texas
Cantrell, David E.	1906	Banty, Okla.	University of Okla.	1934	Healdton, Okla.
Cantrell, Emma Jean	1907	Mounds, Okla.	University of Okla.	1933	Healdton, Okla.
Shelby, Hudson Swain	----	Savannah, Tenn.	University of Okla.	1933	Oklahoma City, Okla.
Waters, Claude Bryan	1907	Pawnee, Okla.	University of Okla.	1934	Mangum, Okla.

The Use of Dilaudid in Gynecologic Sugrery

From the Department of Obstetrics and Gynecology, Washington University, St. Louis, T. K. Brown and H. L. Kleine report on their experience with Dilaudid in gynecology with two hundred and twenty-five surgical patients (American Journal Obstetrics and Gynecology, Volume 30, pages 89 to 92, July, 1935). In each case, two injections of 1/130 gr. hyoscine were given. The first injection, one and three-quarters hours before operation, was combined with 1/48 to 1/32 gr. Dilaudid, the second injection was made one hour before the operation.

In part, the authors write, "As to the analysis of individual cases, it was found that complete analgesia and amnesia were obtained in eighty-three per cent of the cases, moderately good in fifteen per cent and poor in only two per cent. The action was more prompt with Dilaudid than with morphine, the patient becoming drowsy five to eight minutes after the first injection. The amounts of inhalation anesthesia were definitely decreased and the patients reacted sooner after the operation."

Dilaudid relieved pain as well as, if not a little better, than morphine and, of course, in much smaller doses. The action was more prompt with Dilaudid and the mental faculties did not remain dulled as long afterward. Dilaudid did not depress the patient as much as morphine. The patient was clearer, more cooperative in her nursing care, and better able to feed herself and take fluids. Less inhibition of peristalsis with Dilaudid than with morphine in laboratory tests has been reported. We found this to be true clinically, because there was definitely less distension when Dilaudid was used in place of morphine. Less catharsis was employed and there were no cases of ileus in the entire series. Vomiting was definitely decreased. We also noticed that the number of postoperative catherizations was slightly decreased when Dilaudid was used."

Postoperatively, a rectal suppository of 1/24 gr. (0.0025 gm.) Dilaudid was found to be a very easy and efficient way to administer the drug. Pain was relieved within fifteen to twenty minutes and for considerably longer periods of time than when given hypodermically.

Preputial Calculus: A Clinical Rarity

Norman R. Ingraham, Jr., Philadelphia, (Journal A. M. A., July 13, 1935), reports a case and points out that preputial stone occurs in those cases of phimosis, usually congenital in origin, in which the orifice for the passage of urine becomes so small that stagnation occurs in the preputial sac, distended by pressure of urine from the bladder. The anterior urethra becomes dilated, and the bladder hypertrophies and enlarges. Hydro-ureter may develop if the condition continues over a long period of time. Infection of the bladder, posterior urethra, epididymis and testicle may occur and urinary extravasation may result. Particularly in the presence of infection, the debris from which forms a nucleus, stagnation of urine is apt to result in the deposit of urinary salts to form calculi either in the kidneys, bladder or preputial sac. Those formed high up in the urinary tract are caught by the phimosed prepuce if they are carried downward by the urine flow, and the result is the same as though they were formed in the latter situation. The stones consist of organic matter impregnated with calcium or magnesium phosphate or urate, occasionally of ammonium salts or uric acid. They increase more or less rapidly in size as successive layers are deposited. Veneral disease, by narrowing the outlet for urine flow and increasing the tendency to fibrosis, makes the formation of preputial stone more likely. If the case goes untreated, urinary obstruction of severe degree will sooner or later develop, which, without intervention, may give rise to the formation of a fistula. Chronic irritation has caused the development of cancer of the glans in at least one instance, and pressure atrophy of the glans is common. The diagnosis rests on the realization of the existence of such condition, and the treatment, without exception, is circumcision.

Summer Diarrhea in Babies

Casec calcium caseinate), which is almost wholly a combination of protein and calcium, offers a quickly effective method of treating all types of diarrhea, both in bottle-fed and breast-fed infants. For the former, the carbohydrate is temporarily omitted from the twenty-four-hour formula and replaced with eight level tablespoonsful of Casec. Within a day or two the diarrhea will usually be arrested, and carbohydrate in the form of Dextri-Maltose may safely be added to the formula and the Casec gradually eliminated. Three to six teaspoonfuls of a thin paste of Casec and water, given before each nursing, is well indicated for loose stools in breast-fed babies. Please send for samples to Mead Johnson & Company, Evansville, Indiana.

Treatment of Trichomonas Vaginitis With Concentrated Salt Solution

Lazar Rosenthal, Leo S. Schwartz and Joseph Kaldor, Brooklyn, (Journal A. M. A., July 13, 1935), studied the action of hypertonic salt solutions on Trichomonas vaginalis. The fact that Trichomonas vaginalis is an extracellular parasite living free in the vaginal secretion made it possible to conduct the experiments in vitro. It was found that a twenty-five per cent salt solution made the phenomenon of inactivation permanent and irreversible. The parasites could not be returned to life when transferred to a physiologic salt solution. On the basis of these experiments we began to apply salt in the treatment of patients suffering with trichomonas viginitis. Vaginal douching with a twenty-five per cent solution of salt was adopted The patient herself at home can easily prepare an approximately twenty-five per cent solution by dissolving one glassful of salt in four glassfuls of hot water. The solution is used at body temperature. The douching is well tolerated by the vaginal mucosa and does not cause any irritation or discomfort. In nearly all of the fifty-six cases the relief was prompt after one or two daily douches. The itch disappeared, the discharge became scanty, thin in character and odorless, or even disappeared entirely, and the vaginal mucosa assumed a normal appearance. In thirty cases, no more live trichomonas organisms could be found after two or three douches. Twenty-four cases showed complete absence of live parasites after one week of daily douches to bring about the disappearance of the parasites. It is a known fact that, with every method of treatment, the trichomonas vaginitis has a tendency to recur after menstruation. In our series, during an observation period of eight months, the recurrence of Trichomonas did not take place in twenty cases after one month of treatment, in twelve cases after two months of treatment, and in sixteen cases after three months of treatment.

OFFICERS OF COUNTY SOCIETIES, 1935

COUNTY	PRESIDENT	SECRETARY
Adair	R. L. Sellers, Westville	E. P. Green, Westville
Alfalfa	J. P. Bishop, Aline	L. T. Lancaster, Cherokee
Atoka-Coal	J. S. Fulton, Atoka	C. C. Gardner, Atoka
Beckham	P. J. DeVanney, Sayre	C. F. Jones, Erick
Blaine	A. K. Cox, Watonga	T. A. Hill, Watonga
Bryan	C. G. Price, Durant	Jas. L. Shuler, Durant
Caddo	Odis A. Cook, Apache	P. H. Anderson, Anadarko
Canadian	P. B. Myers, El Reno	M. E. Phelps, El Reno
Carter	R. C. Sullivan, Ardmore	L. C. Veazey, Ardmore
Cherokee	P. H. Medearis, Tahlequah	R. M. Williams, Tahlequah
Choctaw	W. N. John, Hugo	E. A. Johnson, Hugo
Cleveland	Arthur Brake, Norman	J. L. Haddock, Jr., Norman
Coal	J. S. Fulton, Atoka	C. C. Gardner, Atoka
Comanche	O. L. Parsons, Lawton	E. P. Hathaway, Lawton
Cotton	M A. Jones, Walters	Mollie F. Scism, Walters
Craig	A. W. Herron, Vinita	F. T. Gastineau, Vinita
Creek	O. H. Cowart, Bristow	J. Clay Williams, Bristow
Custer	J T. Frizzell, Clinton	C. Doler, Clinton
Garfield	A. S. Piper, Enid	John R. Walker, Enid
Garvin	E. F. Taylor, Maysville	John R. Callaway, Pauls Valley
Grady	W. J. Baze, Chickasha	Oscar Pyle, Chickasha
Grant	I. V. Hardy, Medford	E. E. Lawson, Medford
Greer	L. E. Pearson, Mangum	J. B. Hollis, Mangum
Harmon	James E. Jones, Hollis	Russell H. Lynch, Hollis
Haskell	J. C. Rumley, Stigler	N. K. Williams, McCurtain
Hughes	A. L. Davenport, Holdenville	G. W. Diggs, Wetumka
Jackson	Jesse Bird, Eldorado	E. W. Mabry, Altus
Jefferson	C. M. Maupin, Waurika	D. B. Collins, Waurika
Kay	M. S. White, Blackwell	D. M. Gordon, Ponca City
Kingfisher	B. I. Townsend, Hennessey	F. C. Lattimore, Kingfisher
Kiowa	J. W. Finch, Sentinel	J. P. Braun, Hobart
Latimer	J. M. Harris, Wilburton	E. B. Hamilton, Wilburton
LeFlore	W. M. Duff, Braden	W. J. Hunt, Poteau
Lincoln	Ned Burleson, Prague	J. S. Rollins, Prague
Logan	P. B. Gardner, Marshall	R. F. Ringrose, Guthrie
Marshall	P. F. Robinson, Madill	
Mayes	L. C. White, Adair	W. J. Whitaker, Pryor
McClain	B. W. Slover, Blanchard	R. L. Royster, Purcell
McCurtain	R. D. Williams, Idabel	R. H. Sherrill, Broken Bow
McIntosh	F. L. Smith, Eufaula	W. A. Tolleson, Eufaula
Murray	F. E. Sadler, Sulphur	Howson Bailey, Sulphur
Muskogee	J. G. Rafter, Muskogee	S. D. Neely, Muskogee
Noble	J. W. Francis, Perry	A. M. Evans, Perry
Nowata	J. P. Sudderth, Nowata	H. M. Prentiss, Nowata
Okfuskee	J. A. Kennedy, Okemah	C. M. Bloss, Okemah
Oklahoma	Rex Bolend, Oklahoma City	Bert F. Kaltz, Oklahoma City
Okmulgee	G. A. Kilpatrick, Henryetta	M. B. Glismann, Okmulgee
Osage	Divonis Worten, Pawhuska	M. E. Rust, Pawhuska
Ottawa	A. M. Cooter, Miami	J. W. Craig, Miami
Pawnee	R L. Browning, Pawnee	E. W. LeHew, Pawnee
Payne	L. R. Wilhite, Perkins	John F. Martin, Stillwater
Pittsburg	F. T. Bartheld, McAlester	L. C. Kuyrkendall, McAlester
Pontotoc	J. A. Rutledge, Ada	A. F. Dean, Ada
Pottawatomie	H. E. Hughes, Shawnee	H. G. Campbell, Shawnee
Pushmataha	H. C. Johnson, Antlers	E. S. Patterson, Antlers
Rogers	F. A. Anderson, Claremore	W. A. Howard, Chelsea
Seminole	C. C. Whittle, Wewoka	A. N. Deaton, Wewoka
Stephens	W. Z. McLain, Marlow	D. Long, Duncan
Texas	W. J. Risen, Hooker	R. B. Hayes, Guymon
Tillman	J. D. Osborn, Jr., Frederick	J. C. Reynolds, Frederick
Tulsa	R. M. Shepard, Tulsa	David V. Hudson, Tulsa
Wagoner	S. R. Bates, Wagoner	John D. Leonard, Wagoner
Washington	J. G. Smith, Bartlesville	J. V. Athey, Bartlesville
Washita	Jas. F. McMurray, Sentinel	E. K. Copeland, Cordell
Woods	I. F. Stephenson, Alva	O. E. Templin, Alva
Woodward	D. W. Darwin, Woodward	C. W. Tedrowe, Woodward

NOTE—Corrections and additions to the above list will be cheerfully accepted.